THE AUTOMOBILE

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Decay of Speed Laws and Ordinances.

CHICAGO and Philadelphia have of late been the storm centers in the matter of friction between automobilists and highway authorities. St. Louis and Kansas City have seen trouble, and in all four cities peace has shown no disposition to perch upon the standards of the warring factions.

Early in the season prominent Chicagoans opened the wrangle by refusing to carry registration numbers. From this the authorities and police officers became embittered and took advantage of every opportunity to "get even." Then some young operator with more "nerve" than principle hit upon the scheme of carrying a bogus license number, to be used when speeding. The registered number was pulled up with a string and the "fake" number dropped down. When the car was slowed down the numbers would again be manipulated. Should an officer of the law see the car traveling at high speed and telephone to police headquarters to have "a big red automobile, No. 4-11-44" apprehended, the department always failed to find the law-breaker, as "4-11-44," whenever seen, was always going too fast for the operator to even see the indignant policeman, much less hear his order to stop. Soon there were many cars carrying speeding numbers, and these were judiciously changed at frequent intervals, in order that no one number might become fixed in the minds of the police. A score of automobilists, many of them prominent in the business and social life of the city, soon became fugitives from the police. Goggles with face masks became quite popular, and all motorists with a love for fast driving came to look uniformly alike when the high gear was in mesh. City

YIELDING THE RIGHT OF WAY—A TYPICAL SCENE ON AMERICAN ROADS. [See text on page 501]

Electrician Ellicott and Vehicle Inspector Ward could not furnish the names of the law breakers, and it was decided that after January 1 the city would furnish all registration numbers and would have these of such a pattern that they could not be duplicated.

The police of Evanston, a suburb of Chicago, have also been active of late. Two months ago seventeen automobilists were arrested in Evanston for exceeding the speed ordinance. A second raid was made the last Sunday in October, when eight erring Chicagoans were haled before Justice Boyer in the absence of Police Magistrate Ely. Four policemen were detailed to measure off a quarter of a mile on Ridge Avenue, in the outskirts of the town, and to arrest all automobilists found driving faster than twelve miles and hour. The speed limit prescribed by the ordinance is eight miles an hour.

"What will be my fine?" asked the last of the unfortunates when taken before Justice Boyer.

"It will be not less than $10 and not more than $200, if you are found guilty," replied the Justice.

"I am sure the village needs the money," replied the motorist, "but don't you think, Judge, that you could make more by having a street fair?"

A Dead Letter in New York.

The condition prevailing in New York City is described by a newspaper man who had just returned from a ride, one of the first in his experience in a touring car.

"Please slow her a little," said he nervously to the chauffeur when the speedometer plainly showed a speed of twenty miles an hour.

"What for?" replied the chauffeur, "I never worry about that. Now you watch the speedometer, watch the policemen and I will drive as I always drive, and you can see just how much of a dead letter that eight-mile-an-hour rule really is. As a matter of fact it is nonsensical, for a pedestrian goes four miles an hour and to keep a big car, such as this at eight miles an hour is terribly trying on the nerves."

The car was then climbing the hill from 42nd Street on the high speed and at eight miles an hour. Reaching the top it flew down Fifth Avenue at twenty-five miles an hour. A policeman on a bicycle nodded pleasantly to the driver and several policemen on foot did the same. Other autos passed the huge car from behind.

"Now I am going to slow down to eight miles an hour," said the driver, as he struck the Park. The old Fifth Avenue horse-stage wended its weary way right by the handsome car. A newspaper auto fairly flew as it went by. Wagons, swell carriages and pretty nearly everything on the road went by in regular order. The chauffeur turned across to Broadway, still at the same speed, and on Broadway the street cars passed the automobile.

With a slight quickening, twelve miles an hour was reached, then fifteen miles, and then eighteen miles, still without question. Other autos went right along at the same gait.

"The law of eight miles an hour is impractical and impossible in a powerful car," said the driver. "Twelve miles might be better. That is the law in Greenwich, Conn., but you hardly ever go through there at that gait. It is always faster, but the difference is not so great. When they made the law of eight miles an hour, they did not know what speed that was. I wish I could get in some of the men who voted for that law and then mosey along through Broadway at the legal rate. I will wager my month's wages that the law maker or makers would kick and ask whether my machine was any good or ask me why I did not keep it in order."

With the speedometer registering fifteen miles an hour, a wagon and some pedestrians at a cross street blocked the passage. Within a few feet the big car came to a dead stop, then started up again at a crawl, went by the obstructions, passed congested traffic farther on and again started up at fifteen miles an hour from an almost dead stop. The policeman on the corner did not look surprised at all as he was passed, and a Broadway cable car kept pace with the machine for a block while it traveled at from twelve to fifteen miles an hour.

"I have never been arrested," said a chauffeur, "for I never drive faster than twenty miles, and I am perfectly safe at that. Other vehicles go at from twelve to fifteen miles and somehow they expect one of these big autos to go just a little faster. It is all right to do so and I never worry."

Quakers Try Retaliation.

Philadelphia automobilists claim that the guards in Fairmount Park in that city have 'motorphobia," and arrest automobilists on "any old" provocation, and the magistrates exact fines when absolute proof is given that no law has been broken. A recent case has been appealed to a higher court, the motorist in the case claiming to have conclusive evidence that he has been twice unjustly fined by the same magistrate. The motorists are making war upon the drivers of fast horses, claiming that though the horsemen invariably drive faster than the law permits, they are never molested, while the automobilist, fast or slow, is the common prey of the police. The horsemen are being timed by automobilists, and certain ones who exceed the speed limit are reported to the police.

In Kansas City the law requires automobilists to take out both a county and a city license, at a total expense of $7.10. Many refuse to take out city licenses, however, holding that, having purchased county licenses, as required by the Matthews automobile bill, passed at the last session of the Legislature, it is unjust for the city to demand an additional license fee. Benjamin F. Sylvester, the city license inspector, zealously attempts to inforce the city ordinance and there is no peace in Kansas City.

In St. Louis, where there is a county but no city license law, though there has been no concerted action on the part of the automobilists, many have complained that they have been unjustly arrested. The fact that the St. Louis police carry clubs "as big as ball bats," and are a bold and brawny lot, despite the city's bad water and its excellent beer, makes it a rather hazardous undertaking for the law breaking motorists to disregard the call to stop. And it rankles the hot blooded St. Louis scorchers to get "pinched" *every* time.

A Variety of Repressalia.

St. Paul is the home of a man who wires up the wheels of every automobile he finds without a State license number tag, and being the State Boiler Inspector, he affixes the State seal to the joined ends of the wire. So there is nothing to do but go get the numbers and put them on, for it is a serious offence to break the State seal.

The Grand Rapids city officials insist on the automobilists displaying their license numbers on the lenses of their lamps, while the owners of cars just as earnestly object. There's trouble there, too.

In Detroit, now that everything else is running smoothly, a man whom the city pays to inspect its asphalt paving, has gone nosing around and trumped up a charge that the automobilists allow gasoline to leak from their cars to the destruction of the beautiful paving of the City of the Straits. No one loves him for it, either.

The city fathers of Milwaukee have finally decided that the automobilists may use horns as a means of giving alarm, and bells are no longer required, for all of which the owners of motor cars in the city are properly grateful.

After the Massachusetts Highway Commission had licensed about 3,500 operators of automobiles, which number was reached but just recently, it was thought that as far as experienced operators went the State was pretty well covered. So the Commission devised a plan of conditional licensing, or the granting of a license under a special restriction. This special restriction is as follows:

"This license is issued subject to the express condition that the licensee shall not operate any motor vehicle unless he is accompanied by a regularly licensed adult operator. This restriction will be removed when the Massachusetts Highway Commission is satisfied that the licensee has acquired the requisite knowledge and skill to operate motor vehicles with safety."

The German Government some time ago ordered the collection of statistics of all

accidents which were caused by automobiles, to be used in drafting a law for the control of the speed of the motor vehicles. The Secretary of the Interior, Count Posadowsky, has now communicated with the governments of the various German States with a view to regulating the automobile traffic by a uniform Federal law.

In a recent report of a sub-committee appointed by the extra-Parliamentary Commission of France, it is recommended that the present limit of speed be doubled to thirty-seven and one-half miles an hour in the open country, and to twelve and one-half miles in thickly populated districts. Certain precautions must be taken to insure the absolute reliability of the cars. The report is signed by a Socialist member of the Chamber of Deputies, that is, one belonging to the class which in the past has shown hostility to the automobile.

LIBERAL TRAFFIC LEGISLATION UNDER ADVISEMENT IN FRANCE.

In connection with the unmistakable tendency toward practically discrediting the special speed laws enacted in this country, as being unsuited for enforcing that regard for other wayfarers which every motorist should show of his own free volition, the work recently done in France with a view to revising the national automobile laws gains new significance.

An extra-parliamentary commission was appointed by the legislators to investigate the situation in regard to automobile traffic and the technical committee of this disinterested body entrusted the editing of its report to Mr. Coutaut, a *depute* known to be anxious to represent the masses rather than the classes.

"Is there ground for limiting by administrative or legislative measures the maximum speed capacity of automobiles as regularly manufactured; and, if so, what should be their maximum speed on a level surface?" To this question, put by the extra-parliamentary commission, the spokesman of the technical committee proposes in his report as follows: 1. Limit speed on highways where traffic is light to 60 kilometers (37 1-2 miles) per hour; 2. Limit speed in closely built-up sections to 20 kilometers (12 1-2 miles); 3. Give constructors complete liberty to build as they please; 4. Prohibit the use in France of any type of vehicle not approved by the Mining and Engineering Department (*le Service des Mines*); 5. Instruct the Mining and Engineering Department not to issue circulation permits to constructors or importers for vehicles judged capable of exceeding 60 kilometers per hour on level surface, with recourse, in case of dispute, to a technical commission to be created; 6. Devise simple means to enable the inspectors of the M. & E. Dept. to ascertain changes in the speed capacity (such as gear changes) by which owners may have altered the type sold them by the constructors.

The commission also put other questions relating to special permits for persons of exceptional skill to drive vehicles exceeding the speed capacity mentioned, and in regard to authorization of road races on special occasions In the answers, which the technical committee is expected to ratify, the two questions, which, of course, are interdependent, are both treated favorably for the resumption of road races in France. In speaking of special permits for expert racing men and constructors, the following passage occurs: "Yes, there is ground for allowing certain professionals and certain engineers, who stand in real need of this privilege, an opportunity to verify how their vehicles act on the highways when the maximum effort is demanded of the machine. And it is to be remarked that such persons with their vehicles of extremely high speed are less dangerous to the public than a number of drivers of horse-drawn carriages. Besides, they are not numerous, and possess the foresight, prudence and skill which safeguard the public as well as those who accompany them."

LITTLE SERMON PREACHED BY PICTURE ON THE FIRST PAGE.

Through the courtesy of H. Seidenstricker of Buffalo THE AUTOMOBILE is enabled to present on the front page of this issue a remarkably characteristic, and therefore artistic, picture. In all the simplicity of the rural scene, familiar to thousands of motorists, which it represents it conveys a strong impression of that democratic development of automobilism in the United States which promises soon to relieve the whole movement of all hostile interference from short-sighted legislation or biased magisterial decisions. Traveling peaceably with his family the motorist has stopped at the roadside—in the woods near Akron, Ohio—to permit the farmer to pass with his team and wagon, even allowing him fully two-thirds of the road. The concession is purely voluntary, for neither party is probably aware that a queer Ohio law divides the road bed unequally between motorist and horseman. The early autumn—the season for the well-to-do American to go touring in his own country—is visible in the thinned-out foliage and in every line and shade of the picture. Ruts bear witness of recent rains and of those primitive conditions of the highways that all constructors of motor vehicles intended for the majority of American purchasers must needs bear in mind to capture popular success. There is an air of yeomanry, too, over the farmer and his equipment, proclaiming that he might well contemplate to purchase a motor vehicle himself as soon as he gets "good and ready," and use it without transgressing odious class lines. In its pronounced Americanism the picture seems to convey, somehow, an idea of the immense future which lies before the automobile movement and industry in this country, and bespeaks at the same time the needlessness of all restrictions upon their free growth, other than those which have always existed in the easy but sturdy temper of the people and the application of our common law principles to any case of disputed rights. The "Decay of Speed Laws and Ordinances" now witnessed wherever these artificial restrictions have been in force for some length of time, is only the obverse—the negative side—of the sentiment positively asserted and brought home in the chance photograph from every-day automobiling presented herewith.

GOV.-ELECT MYRON T. HERRICK OF OHIO (AT EXTREME RIGHT) GOING TO THE POLLS IN CLEVELAND TO VOTE.

In Europe with an American Car.

BY GEORGE G. REED.

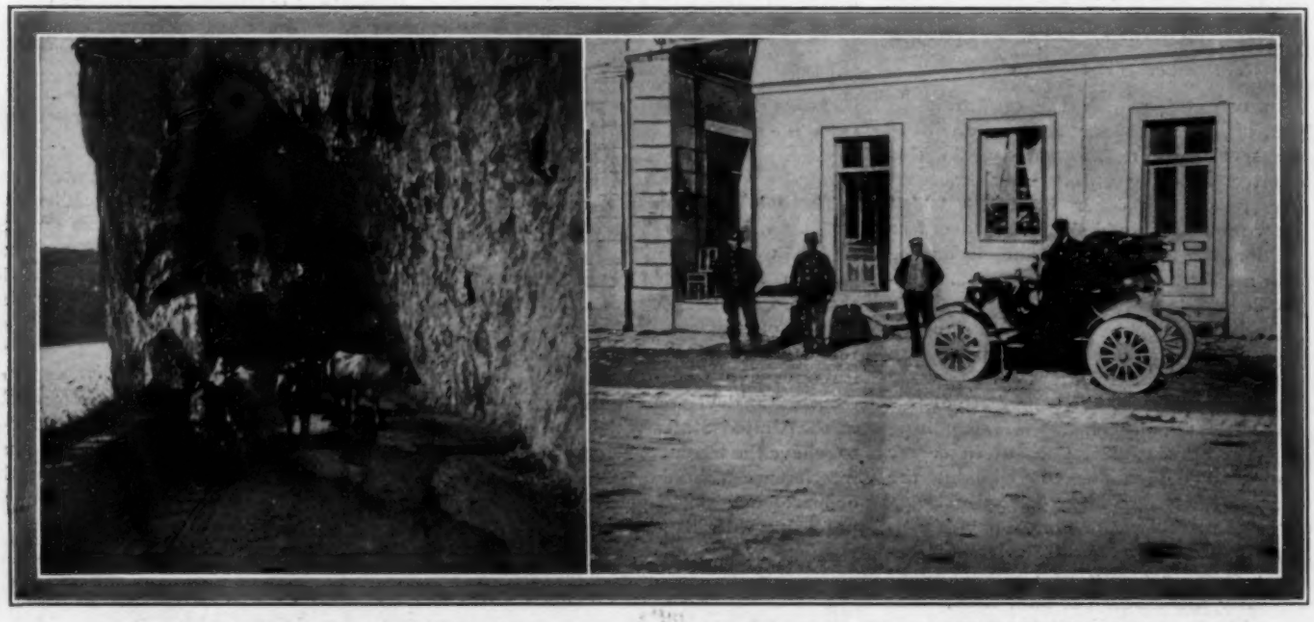
There is a certain amount of excitement attached to a trip in an American automobile abroad, and there is always a certain amount of that lost feeling because you feel that in case of a breakdown you will be unable to get either a nut or bolt which will fit your car. During my trip in Europe I was fortunate in not having to make a single adjustment or replace a single part. I drove a Knox air-cooled car of 1903 pattern, and of course throughout my entire trip this attracted a great deal of attention. I carried two large packages of extra parts, but they proved to be entirely unnecessary. The car was equipped with Diamond detachable tires, and I was fortunate in coming back to America with American air in all four tires, although I carried several extra tubes and outer cases.

We arrived in Hamburg on the *Deutschland* on September 22, only to find that our automobile, which had been shipped three weeks before, had not arrived. We were told that it would be necessary for us to wait four days until the arrival of the steamer. So we took a train to Berlin, which, by the way, was the only trip we had on the steam cars while in Europe. Both going and coming from Berlin we passed through Mecklenburg, where the Gordon-Bennett cup race is to be held in 1904, and from the car windows we had a very good opportunity to size up the roads. As far as we could see, they are perfectly level and extremely smooth. The Duke of Mecklenburg will probably be the master of ceremonies this coming year as he is defraying a great deal of the expenses, being a prominent automobilist himself.

When we got back to Hamburg we were greeted with the news that our automobile had not arrived, as they were having fogs on the Elbe River. We became acquainted with a Mr. von Ohlendorff, who is a member of the German Automobile Club. Now it happened that Mr. von Ohlendorff was about to start on a trip in his 24-horsepower De Dietrich to Strasburg, covering the same ground we had intended to cover. So as things looked rather bad for us, we left orders for the express company to forward our car by rail to Strasburg, and on Thursday, October 1, we left with von Ohlendorff for Hanover. It was late in the afternoon when we started and before we arrived in Hanover it was bright moonlight. The roads as a rule were very fine, but frequently we would find stretches of "pave" which were disagreeable. We stopped to examine a little cluster of trees in the bend of the road, because it was here that seven of the big racing cars in the Paris-Berlin race were smashed up. The road here makes a very sharp turn, and this line of trees seems to be a continuation of the road, and mistaking it for such, the chauffeurs after discovering their mistake were unable to make the turn. We stopped one day in Hanover and the following day drove to Bielefeld, where we finished in pouring rain. Here we visited the factory of Durkopp et Cie, where cars of twelve and twenty horsepower are constructed. At present they are building eight large cars, each capable of carrying twenty people, to be shipped to Buenos Ayres in the Argentine Republic. They are of the three-cylinder type, 20-horsepower. I think they are without exception the largest gasoline cars I have ever seen. They are equipped with solid rubber tires and have a wheel base of about fifteen feet.

On the following day we passed through the most beautiful country, resembling the Berkshire Hills in Massachusetts, to Cologne. The roads here were very fine, although several times we struck fairly steep grades. At Cologne we again finished in the pouring rain, and it seemed as though fair weather was not to be ours.

Monday, October 5, we were still in Cologne and, as it continued to rain, we decided to wait until late in the afternoon for fair weather, but at 4 o'clock it was still raining, and we started up the Rhine. When we passed through Coblenz it rained so hard that we could hardly see the town.



ALONG LAKE THUN, SWITZERLAND. CUSTOMS HOUSE AT VERRIERES, FRANCE.

We arrived in St. Goar about 8 o'clock, and it was still raining hard. We stopped for refreshments and also to dry our clothes somewhat. About nine we proceeded on to Mayence, and soon the moon came out. I think the roads up the Rhine are the finest I have seen either in France, Germany or Switzerland. At times we were traveling 65 to 70 kilometers per hour in the rain, but never once did the car offer to skid, as the roads are covered with a very fine stone which makes skidding almost impossible. From Mayence we drove to Frankfurt, crossing the Rhine and Main Rivers and arriving in Frankfurt at midnight.

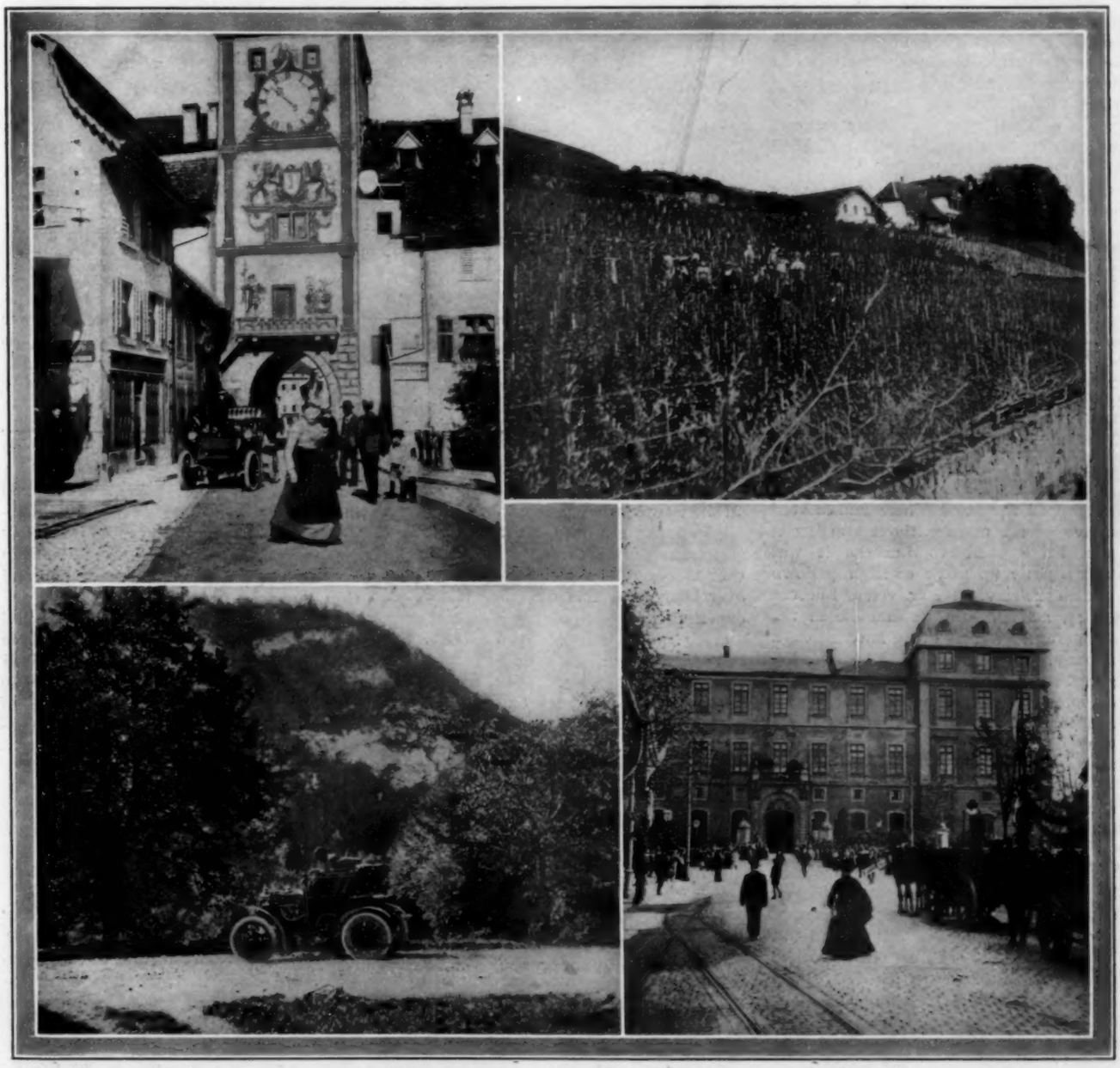
The following day we visited the factory where Peters Union Pneumatic Tires are made, and the director very kindly showed us everything. So far we had seen very few automobiles, in fact, we found out by inquiring that automobiles are not very plentiful in Germany.

Wednesday, October 7, we left Frankfurt and proceeded on to Darmstadt

We found this place in gala attire, as the Princess of Battenberg and Prince Andreas of Greece were to be married. The streets were full with people and we had to drive very carefully. We saw the palace, took a few pictures, and then proceeded on to Heidelberg. Here we stopped for lunch and afterward visited the famous old castle.

burg getting our automobile out of the customs and uncrating it. Here we visited the factory of De Dietrich et Cie, which is about twenty-five miles out of the city. This is one of the three De Dietrich factories, one of the others being at Luneville. At Luneville the cylinders are cast in pairs with separate water jackets for each

part in the car, including the lamps, is taken out and put in a large basket. These are locked up in a "magasin," and as there is only one man who has the key to this, patrons are pretty sure to get all their tools back. This wouldn't be a bad thing to practice in America. We saw here a 70-horsepower car which was built



SMALL TOWN NEAR LUCERNE, SWITZERLAND.

ON THE HANNERSTEIN.

VINEYARD NEAR NEUCHATEL.

PALACE IN DARMSTADT.

Heidelberg is one of the most beautiful cities in Germany, being situated on the Neckar River with high mountains on each side. We left here at 3 o'clock for Strasburg, passing through Carlsruhe, the home of the Grand Duke of Baden. The roads were excellent and we made the run of 60 kilometers in just one hour, arriving at Strasburg at 7.30.

Thursday and Friday we spent in Strascylinder, whereas here they are cast in pairs but have one large water jacket for each pair of cylinders. The cars are of 24 and 30-horsepower in the 1904 model, and larger cars are constructed to order. Here we noticed a great deal of American machinery, although they do a great deal more of the work by hand than we do in America. When cars are run into the factory for repairs, every tool and extra

for the Paris-Madrid race. This was debarred from the race because the driver would sit so low over the rear axle that he could not see the road more than 150 feet ahead.

We were constantly stopped for fast driving in Strasburg, and upon inquiry we found that the speed limit was five kilometers per hour. This I believe is the lowest speed limit in any city in the world.

On Saturday, shortly after noon, we were again on our way, this time in our own automobile. We passed through Colmar and Mulhausen, arriving at the Swiss border about 7 o'clock. We were always able to find our way because we had very excellent road maps, which are gotten up for bicyclists and automobilists. Here we received our duty back from the German Government, but in about two minutes we had to pay more out to the Swiss. In both Germany and Switzerland the customs authorities put on what they call a "plomb." which is nothing more than a seal such as is used by railroad companies to seal car doors. We reached Basle about 8 o'clock.

Sunday, October 11, we arose very early, as our map showed us we had a long climb ahead of us, and such was the case, for we had not gotten more than 20 miles away from Basle before we were climbing up a 15 per cent. grade. This continued for about six miles, and as the gasoline was very poor we were unable to use our high gear. Gasoline runs very uneven in both Germany and Switzerland, although they always claim that it is the best, but over there the best gasoline only tests 68, which, of course, seems very low as we all use 76 here.

We arrived at the top of the Hannerstein and stopped the engine there and coasted for five or six miles without starting it again. From there to Lucerne it was either slightly up grade or slightly down grade all the way. We arrived at Lucerne at 2.45, and put the automobile in the hotel garage. Nearly every hotel through Germany, Switzerland and France is equipped with a small garage, although with some of them it simply means putting the automobile in the back yard.

On October 12 we started out in the pouring rain, and this seemed too bad, because we were to pass through some of the most beautiful scenery in Switzerland. We climbed steadily on 12 and 15 per cent. grades for 5,000 feet. Then we were above the clouds and the sun came out. The scenery was almost indescribable: beautiful green valleys, placid lakes and snow-capped mountains all around us. About 11 o'clock we reached the top of the Brunig Pass and were 7,300 feet above sea level. I believe that no Knox car in fact, no air-cooled engine of any sort, has ever ascended higher. Here we stopped our engine and for seven miles had no use for it.

At Brienz, on the shore of the beautiful Lake of Brienz, we stopped for lunch, and then proceeded to Interlaken. Then it began to rain again. We asked a girl at the hotel in Brienz if she knew the exact distance to Interlaken, and she replied that she did not, but that it took three hours to walk, one and one-half hours by boat, and to ride over by bicycle, only one hour. We made it in one-half hour. We had planned to go from here to Geneva, but we were informed by an American who lives in Interlaken, that we would be sure to find snow on the Zweizimmen. So, taking his advice, the following morning we started up the Lake of Thun *en route* to Neuchatel.

The ride along the shore of the lake was very interesting, as we were constantly passing through tunnels and meeting small herds of cattle. Every time we met these it was necessary for us to stop, as we did not care to drive them off into the lake. We passed through Thun, arriving in Berne, the capital city, at 10.15. We were enjoying a beautiful day, one of the finest we had while in Europe. We spent about two hours in this quaint old town, then proceeded on through Aarberg to Neuchatel. Several times after leaving Berne we found ourselves on 30 per cent. grades, but as the roads were fine, our car climbed them easily. After leaving Aarberg we were in the grape raising country, and were continually passing through beautiful vineyards. Neuchatel is delightfully situated on the shore of the lake, commanding a magnificent view of the Bernese Oberland. Back of the town mountains rise to a height of about 5,000 feet. After eating our lunch we started a continuous climb to the French border. Here we struck 30 per cent. grades very frequently, and at times the car had about all she wanted to do, as we were carrying a big load, but not once did it falter. Several times during our trip people told us that we would have difficulty in getting over places but this difficulty was never experienced.

At 5.15 we arrived at Verierres, the boundary town between France and Switzerland. Here we got French time and set our clocks back one hour. Here we also experienced our first difficulty, because the official in charge would not accept our Swiss money and we had no French. He spoke no English but luckily we could talk French or I think we would have been there yet. He showed us his watch and then told us he closed tightly at 6 o'clock. I made my declaration, describing my car and as it was so near 6 o'clock he advised us to stay there all night. We took his advice, as we could not do otherwise, as he certainly had us at a disadvantage. One of the guards took us to the hotel which is about as large as a soap box, and introduced us to the proprietor. Although the accommodations were not of the best, we spent a very enjoyable night there. In the morning we went to the bank. Well, the bank was small and our money was large for the place, so they couldn't give us French money for all of it. What we couldn't get in French we took in Swiss and when I left the bank, I had about fifty pounds of silver in my pocket. At a small store we got some more French money and were able to go to the customs and settle. Here I asked them if I might take a picture and they immediately went inside, buckled on their swords and came out and posed. I promised to send them a photograph from America, and then we started out for Pontalier.

Pontalier is the frontier town of France and is very strongly fortified. Here we were able to get good gasoline, which comes in five-litre sealed cans and is called "automobiline." We passed on through the Province of Cote d'Or, passing Salines and Dole, thence on to Dijon. Here we had our lunch and spent an hour in seeing the city. At 4 o'clock we left for Tonnerre, 125 kilometers away, but as we had considerable climbing out of Dijon it was dark before we got half way to our destination. We were on the "*Route Nationale*," but in the darkness we lost our way and wound up in a small town called Elise St. Reine. We did not know where we were but we found a small hotel here and decided to stay all night. We put our car in a shed and after supper we entertained the notary, who is always the most important citizen in these small towns. He informed us that we were in a very famous town as it was the "Elisa" described by Caesar in his "Commentaries." In the morning the notary and hotel proprietor took us up to the hill and showed us the statue to Vercingetorix, erected by Napoleon III., and they gave us a very good description of the battle. About 9.30 we left for Paris, 200 kilometers away, and arrived in the big city at 6.30. We went immediately to a garage and the following day made arrangements with the American Express Company to crate the wagon and ship it back to America.

After this trip, I hardly think I could accustom myself to seeing Europe from the car windows. If I ever go again I shall most certainly take an automobile with me, as it is by far the best means of seeing the country. You have the advantage of mixing right in with the people, although it is perhaps necessary to have a fair knowledge of the language; yet, with that, you are able to get ideas of the country which can never be obtained through traveling in the cars.

Professional Drivers in Gordon Bennett Race.

"The action of the German Automobile Club in asking that the clubs of the different nations be permitted to nominate drivers for the cars in the International Gordon Bennett Cup Race who need not necessarily be members of the competing clubs, is all right, but will serve to bring into the race professional drivers," said Percy Owen, a member of the American team in the 1903 race, on Tuesday. "Doubtless it is true that the speed necessary in these races is now greater than private owners wish to travel at, and doubtless the European clubs find it impossible to secure gentlemen drivers capable of handling their cars. Here in America we might find such men, but there are other men who are willing to represent the club. but who are not in every sense of the word amateurs."

Back to New York with the Stearns Car.

In the story of the Endurance Run no name was more frequently mentioned than that denoting the F. B. Stearns touring car. Driven by its designer and maker it became prominent by bursts of speed under dangerous conditions of traveling, by narrow escapes naturally resulting from the free and easy understanding of the contest rules which Mr. Stearns adopted as soon as it was evident that "points" would mean little in the final outcome, and by the quick, efficient repairs following the mishaps from which no one was immune on this run.

During a conversation at the Hotel Schenley, an automobile manufacturer remarked that he doubted whether any machine that passed through the contest would ever be of much account again. Mr. Stearns thereupon decided to send No. 35 back over the same road to New York merely to prove that machines as well as drivers existed which could repeat the Endurance Run and all its hardships. The terrible weather that had proven so disastrous in the contest, had apparently been harder upon the men than on some of the machines, and Mr. Patton, who volunteered to run the car back, required rest according to the directions of a physician. It was several days before the official inspection of the competing autos was finished, and then, on Thursday morning, October 22, at dawn, the Stearns machine was started back for New York City. Mr. Patton on his trip was accompained by E. T. Fetch, who ran a machine from San Francisco to New York, and E. F. Balinger a newspaper reporter from Pittsburg. The entire journey was made over the identical route of the original endurance run. In spite of a dense fog that made slow speed necessary for thirty-five miles, a frightened horse episode that delayed the excursion for over two hours and took the auto three miles off its course, Cleveland was reached in the afternoon and the night was passed at Ashtabula, 195 miles from the starting point. On the second day a series of hail storms were encountered, and while the machine worked satisfactorily, the pelting particles of ice proved so punishing to the men that they were driven to shelter. This remarkable gale made the fields and roads perfectly white and delayed the day's run for five hours at Erie, Pa. At Fredonia, N. Y., the travelers were forced to remain long enough to dry their drenched clothing. They covered 140 miles that day, entering Buffalo soon after nightfall. Trouble started early on the third day when two burst tires had to be replaced. Before passing out of the Buffalo city limits the chain bolt loosened. Rain had destroyed the guide book and the wrong road was entered. This caused delay on account of having to retrace tracks for over seven miles. At last Bath was reached, the day's run being 123 miles. Next day much time was lost on account of frightened horses, but the car landed at Delhi, a distance of 175 miles from Bath. The following morning found the big machine slowly picking its way over snow-covered roads and through blinding gusts of "the beautiful." This section was one of the worst on the endurance trip and conditions had not improved in the least. The winding thoroughfares were slippery and treacherous, and it seemed that wherever the passage way became too narrow for teams to go by, a scary horse was sure to bob up. Andes, where other automobiles met with bad luck, was at last passed in safety and the ascent of the Catskills proper commenced. Then came more tire trouble. Soon a washout made a long detour necessary. The only way to get around a bad place where a bridge had been washed away was to take a narrow and rugged road that passed for more than half a mile up an incline which baffled all save horseback riders and occupants of very light rigs. The great tonneau, however, carried its occupants steadily up this seemingly impossible hill and down the step-like rocks that wound about for three miles and finally led to the main road just below the washout. Late in the afternoon it was found that the oil bought in a country store was worthless, and a trip of three miles by foot to the nearest town delayed the journey until after dark. Owing to the dangerous condition of the way, and the bitter cold, it was decided to remain in the village of Shokan over night, although only fifty-nine miles had been covered. Next morning the machine required a careful overlooking as it had stood all night in the snow. The freezing, however, had done no harm, and, after thoroughly cleaning the cylinders and putting in a supply of better oil, the start for New York was made. After passing Kingstown, innumerable setbacks were caused by losing the way, passing washouts, fording shallow streams and looking after skittish horses. After passing Newburg a detour was necessary on account of a missing bridge. A boy directed driver Patton into the wrong field and the machine plunged to its hubs in muck. Half a mile's trudge to a farmhouse resulted in unearthing a long handled spade and Tom Fetch cheerfully whistled "Home Sweet Home" as he plied the shovel. After digging the mud away from the rear, Mr. Patton applied the reverse and to the delight of all, the machine slowly backed out upon dry land. At Tuxedo another detour was made unavoidable. For a while the temporary road curved about through meadows and forests, into gullies, over bumps and across a roughly-constructed bridge that creaked and swayed as the auto carefully picked its way across the ravine thus crudely spanned. This feature of the trip was made more exciting by the fact that night had set in and the only light was that cast ahead by the brilliant reflectors on the foreend of the car. Wearied from strain upon their nerves, the occupants of the auto were becoming elated at the faint gleam of light reflected into the clouds from New York, now only nineteen miles away. Just as they were discussing the dainties they proposed to eat at the prospective dinner, the machine came to a standstill. No gasoline had been taken on since morning and the many miles of detouring and extra work over the bad byroads had exhausted the supply. No farmhouse lights were discernible; the walking was bad owing to the deep sand, and it was decided to sleep in the open air, as the travelers were tired and worn. Oilcloths were used instead of warm blankets, and there, in the chill, damp air, with the tombstones of Waldwick cemetery weirdly looming up by scores at the roadside, the fatigued trio soon dropped into dreamland. At 3 o'clock in the morning they found themselves so benumbed, however, that they could sleep no more and determined to push toward the Atlantic Coast in quest of gasoline. At a crossroad one mile distant they succeeded in awaking a resident who directed them to the nearest suburb, four miles further on. They clambered over three broken-down bridges at great risk, for it was inky dark and no lanterns were at hand. One of these washed-out structures had only a small section near the handrail to hold the pedestrian from plunging into the swollen current. These bridges had all been wrecked during the flood that set in the day the great endurance run opened. At last the three men arrived in Ridgewood and finally secured gasoline at an automobile repair shop. They were then conveyed to their machine, and an hour later found them at the garage of the American Automobile Storage Company, where they were enthusiastically greeted by leading motor-car men. The Stearns tonneau had accomplished 1,600 miles against terrific odds and had seen no shop repairs whatever. Her mudguards and one spring were still tied up with leather thongs exactly as they had been temporarily "fixed" after the series of wrecks at Pittsburg. The return to New York was made in 54 hours and 18 minutes running time, including the time consumed on account of long and frequent detours.

Judge W. B. Neff, of Cleveland, O., has decided that an automobile shed is a barn, and must not enjoy any distinction or dignities not allowed the ordinary building of that name. The court's opinion was given in a decision refusing to dissolve an injunction order which Judge Darios Cadwell had secured to prevent the erection of an automobile shed on a neighbor's lot.

GOLD MEDALS AND CERTIFICATES FOR ENDURANCE RUNNERS.

The executive committee of the National Association of Automobile Manufacturers after discussing at its meeting last week, Wednesday, the report on the New York-Pittsburg Endurance Run, rendered by a special committee consisting of Henry Souther, William R. Innis and S. A. Miles, appointed to examine the reports of the observers, decided to award a first-class certificate to the makers of each car that reached Pittsburg, and gold medals to the manufacturers of certain cars whose performances were particularly meritorious. The list of gold medal winners will not be issued until after the December meeting of the executive committee.

Following is the official report of the N. A. A. M. executive committee:

The special committee found that from Thursday, October 8, to Saturday, October 10, inclusive, the road conditions were of such a character as to completely annihilate the possibility of conducting the run upon the plan originally outlined in all of its details. When it is taken into consideration that for thirty-six hours railroad trains were delayed, and, in many cases, abandoned, that it was impossible to send express matter out of New York for forty-eight hours, and that the newspaper men accompanying the run were unable to get their messages into New York because of the fact that the telegraph poles and wires were down, it will be easily understood that the road conditions were abnormal. The fact that, despite all these difficulties twenty-four of the original thirty-four starters, in addition to two pilot cars and two accompanying tourists, reached Pittsburg, is, in the opinion of the committee, the finest testimonial of the stability and practicability of the American automobile it would have been possible to have obtained in any manner.

The committee found that, on account of the extraordinary conditions prevailing the management was confronted at two stages of the journey with the suggestion that the test be discontinued because it was believed by many that the physical strain upon the operators and observers was beyond endurance; that the abandonment of the run, however, might have been accepted by the public as an admission of weakness and that it was, therefore, continued with slight modifications of the rules, but, as nearly as possible in accordance with the original intention.

The management was in constant telegraphic and telephonic communication with all the towns of importance between Pine Hill and Erie. The contestants who asked for instructions were advised that, regardless of points or certificates, there would be sufficient glory in the fact that they managed to reach Pittsburg at all, and were advised and urged to maintain the struggle. Practically all of them did so at great personal inconvenience and no small amount of actual suffering. The committee therefore recommended that the highest possible credit be given them, consistent with justice to those who finished the run without deviation from the rules and to the public.

The committee reported that on account of the condition of the observers' records, due to rain and mud, it had been found impossible to prepare a chronologically accurate report of the performances of the cars which failed to reach every garage on time. As an example of the difficulties, the committee quoted one case in which the observers' record had been swept away by the flood In several cases observers left their cars, either through sickness due to the storm, or because convinced that the cars could not proceed; despite which, however, the operators delivered the cars safely in Pittsburg. All of the belated cars arrived at one or more of the garages after the officials had departed, so that it was impossible to determine what allowance to make for rest, whether to consider their night stops as if official garages, or whether it would be proper to penalize a multiplicity of incidents over which the contestants had no control and which reflect no discredit upon the cars.

The executive committee considered the detailed statement, made by the special committee, at great length, and eventually agreed that nothing short of suspension of the rules could lead to a settlement. The rules were, therefore, suspended and it was decided to present a first-class certificate to the maker of each car which reached Pittsburg, and gold medals to the makers of certain cars the performances of which were especially meritorious. The list of gold medal winners will be issued after the December meeting of the executive committee.

Because of the incomplete records of stops, repairs and replacements, and the loss of records on which the Association was dependent for information, it may be impossible to issue an official statement of these incidents. The records indicate, however, that the average cost of repairs and replacements was exceedingly low, being, in many cases, but a small fraction of 1 per cent. of the value of the cars.

The examiner found that the cars arrived at Pittsburg in better condition than had been thought possible, even by the most optimistic. Each car was critically examined. Each one was run about the streets of Pittsburg under its own power, and it was found, in a large majority of cases, that such defects as were discovered during the examination were due in great measure to failure of operators to make simple adjustments, their object being, of course, to avoid penalization for stops. No repairs or adjustments could be made under the rules, even in garages, without penalization.

WINNERS OF FIRST-CLASS CERTIFICATES IN THE NEW YORK-PITTSBURG ENDURANCE RUN, OCTOBER 7 TO 15, 1903.

Name of Car.	No. of Car.	Name of Maker.	Operator.	Weight in lbs.	Retail price.
CLASS A—RETAILING FOR $1,000 OR LESS.					
*Rambler	18	Thos. B. Jeffery Co	Arthur Gardiner	1,350	$750
Rambler	17	Thos. B. Jeffery Co	Edward Collier	1,350	750
Fredonia	20	Fredonia Mfg. Co.	F. L. Thomas	1,300	1,000
Oldsmobile	39	Olds Motor Works.	C. Roberts	920	650
Oldsmobile	41	Olds Motor Works.	L. L. Whitman.	920	650
CLASS B—$1,001 TO $1,500, INCLUSIVE.					
*Pierce (Stanhope)	15	Geo. N. Pierce Co.	Percy P. Pierce	1,250	1,200
Fredonia	19	Fredonia Mfg. Co.	C. T. Gaither	1,700	1,250
Knox	23	Knox Automobile Co	Howard M. Davis	1,850	1,250
Franklin.	26	H. H. Franklin Mfg. Co.	W. H. Bex	1,100	1,300
Franklin.	27	H. H. Franklin Mfg. Co.	C. A. Benjamin	1,100	1,300
Haynes-Apperson.	30	Haynes-Apperson Co	Frank Nutt	1,430	1,450
St. Louis	42	St. Louis Motor Carriage Co.	G. P. Dorris	1,700	1,500
CLASS C—$1,501 TO $2,000, INCLUSIVE.					
*Toledo	10	Pope Motor Car Co	George Soules.	1,900	2,000
CLASS D—$2,001 TO $2,500, INCLUSIVE.					
*White (Steam)	5	White Sewing Machine Co	Webb Jay.	1,675	2,000
*White.	6	White Sewing Machine Co	Paul H. Deming.	1,675	2,000
*Pierce Arrow.	14	Geo. N. Pierce Co.	Charles Sheppy	1,960	2,500
*Packard	16	Packard Motor Car Co	E. T. Fetch.	2,200	2,500
Knox	24	Knox Automobile Co	J. E. Cowan	2,450	2,200
Knox	25	Knox Automobile Co	Frank H. Fowler	2,400	2,200
Haynes-Apperson	31	Haynes-Apperson Co	H. W. Lanterman	2,350	2,500
CLASS E—$2,501 TO $3,000, INCLUSIVE.					
*Stearns.	35	F. B. Stearns Co.	F. B. Stearns	3,000	3,000
CLASS G—SELLING FOR MORE THAN $3,500.					
*Columbia	2	Electric Vehicle Co	B. B. Holcomb.	3,100	5,000
*Columbia	3	Electric Vehicle Co.	L. L. Duffie.	3,100	5,000
Toledo	9	Pope Motor Car Co	H. W. Winters	2,700	4,500
Locomobile	36	Locomobile Co. of America	A. L. Riker.	2,300	4,000

*Cars that arrived at every night control before it closed officially at midnight

Quit Business to Escape Paying Royalties.

A. B. C. Hardy, recently treasurer of the Flint Automobile Company of Flint, Mich., states that the only reason why this company chose to go out of existence was that its officials did not wish to carry the burdens imposed by the Association of Licensed Automobile Manufacturers. The company had paid royalties under the Selden patent direct to the Electric Vehicle Company for all machines it had produced.

Motor Omnibuses in Great Britain.

BY MARTHA L. ROOT.

Great Britain is seriously taking up the omnibus question. In London motor 'buses run regularly from Kilburn to Marble Arch at intervals of five minutes each in the morning and evening and during the middle of the day there is a ten-minute service. So successful have these vehicles proved that a motor 'bus company is being formed to put automobile omnibuses on London thoroughfares by the hundreds.

At present there are more than 5,000 horse-drawn omnibuses in the English metropolis, but so great interest has been taken in the development of the motor omnibus service in London that large property owners offer to subsidize it without stint. Five per cent. of the capital of the Kilburn service comes from subsidy alone. Business men are alert to the fact that this new cheap and rapid transit is bringing up the value of property by leaps. The motor fare in London is two cents a mile, and the present cars seat twelve passengers.

The new 'buses which are being added remind one of the private cars in the luxuriousness of furnishings, and deep-red, richly upholstered seats of ample dimensions leave nothing to be desired in comfort. These 'buses are not pleasure cars with large bodies stuck on and the speed reduced. They are built scientifically in factories that turn out nothing but motor 'buses.

The credit for establishing the first exclusively motor 'bus factory in the world belongs to Scotland. Some of these new Scotch cars are double-deckers, large enough to seat twenty-eight passengers; others seat fourteen people. It should be stated, too, that so far, overcrowding and strap-hanging have not been allowed.

Besides the London service which is soon to be developed phenomenally, the North Eastern Railway has had a number of motor 'buses built to do the work of a light railway in the country district of Yorkshire. The motor 'bus service started there September 1, and will be continued until the company builds a railroad—an operation which will not be begun for two years yet.

Edinburgh, Scotland, has a 'bus system on Prince's Street, but the cars are antiquated vehicles run by private individuals. Ireland has a magnificent fleet of automobile 'buses ordered by Lord Leitrin for the Northwest of Erin's Isle. The cars will run from the Strabane Midlands of Ireland to Letterkenny, Milford, Mulroy, on to the terminus Rosa Penna, the route covering about fifty miles. South Africa also has a fleet of fine motor 'buses which are driven between Auckland Park in Johannesburg and a Northwest suburb. South America has a large order for Scotch 'buses to be shipped the first of December.

It is a noticeable fact that the English motor 'buses are of gasoline motive power. The reasons given by managers and builders are the same: the cost of electric traction is great, while the gasoline is so cheap that the gasoline-propelled 'buses are driven at a cost of less than two cents per mile. The new cars weigh from one to three and a half tons and cost $3,500, with seating capacity for fourteen; the double deckers sell at $4,570.

At the Stirling motor 'bus works at Granton, three miles from Edinburgh, Scotland, a new 'bus was given its last trial trip last month before being shipped to the North Eastern Railway Company. The great roomy car was palatial in its luxury; no dust sifted in through the windows, and though the day was warm the car was cool; it could also be made delightfully warm in winter. So smoothly the machine bowled along and so rapidly too, that one could not but wonder why New York, Philadelphia, Pittsburg and

STIRLING 12-HP OMNIBUS, SAME TYPE AS IN LONDON SERVICE, CLIMBING GRADE 1 TO 6.

VILLAGE WHERE BUS COULD NOT TURN AROUND. OMNIBUS BUILT FOR NORTH EASTERN R'Y CO., ENGLAND.

Chicago do not have these large comfortable conveyances for business men to go to and from downtown offices. Quick, comfortable service would soon become a necessity and a means of transit would be provided better than the street car and not so expensive as a cab.

However, to come back to Scotland, the trial was as different from an American trial trip as one can imagine. The big 'bus swept along fine macadamized old country roads guarded on either side by hedges of swaying green and fir trees on to a quaint Scotch village—the kind of place one reads about but so seldom sees. It was a hamlet of one single street so narrow that the motor 'bus, after being started down the thoroughfare, had to be backed out as the way was too converged for the giant car to be turned around. Leaving the North Eastern Railway Company's motor outside this village, which is called Cramond, the passengers went past the two-roomed cottages, the "buts and bens" of the inhabitants, down to the foot of the picturesque street where they found an old-time ferry. An "auld" Scotch boatman stood waiting ready to ferry any guests over to Lord Rosebery's estate, Dalmeny, just across the water. A little island farther out was absolutely immune from motor traffic. A hermit lives out on the island and makes only one trip a year to the city of Edinburgh. In the sun of a summer afternoon the island was charming to look upon; maternal cows and shy sheep grazed peacefully near the bent old man who was working in a field, but the village folk said that in winter, often for six weeks at a time, no one could cross to the island because of floating ice blocks in the stream's current. Walter Scott spent one night on the island and another at Cramond, but he must have "slept," for he has not immortalized the spot in prose or verse, and tourists as a rule do not discover it. What Sir Walter Scott would have said could he have looked up the village street that October afternoon to the veritable palace car with no visible engine, or what the fawn-eyed hermit would have thought of the motor, is unknown, but the village population came out to see the wonderful "machine."

Returning later to the works and going through the factory, the mechanism of the car was thoroughly explained. A short technical description of the new motor 'bus may be given, for the patent-rights soon may be brought to Chicago, and similar 'buses made in America. The motor is either a 12-horsepower or 24-horsepower double-decker fitted with an automatic governor. It is furnished with two forms of ignition, either with approved electric from primary or from secondary cells or with incandescent tubes. The capacity of the gasoline tank is nine gallons which is sufficient to run the 'bus more than 100 miles on one charge. Six gallons of cooling water are carried. No circulating pump is fitted, the water being circulated naturally on approved system. Nearly 200 miles were run continuously on this North Eastern Railway Company's 'bus without a single stop.

This 'bus, made at the Stirling Factory, is gear driven, no chains being employed. The power of the motor is transmitted by means of a large diameter friction clutch to a train of gears of special metals, giving three changes of speed, and enclosed in a dust-proof oilbath, thence by a universally joined shaft to a driving bevel pinion on roller bearings, and has ball thrust and engages with a large diameter bevel wheel on the countershaft on the ends of which are carried steel-toothed wheels, which in turn engage with toothed driving rings of special metal, externally cut, attached to road wheels.

There are two independent brakes of unusual power, both double acting, that is, they can be applied effectively when the 'bus is moving either backward or forward. The first is a quick acting foot-brake operated by a wood-lined band on a water-cooled drum fixed to the second shaft. The second brake is a powerful side lever one of new design, operating internally on the driving rings of the rear road wheels. Either of these brakes is capable of holding the vehicle fully loaded on a gradient of one in six. The wheel steering, too, is of special design, having a spring cushion attachment to intercept or absorb the shock produced by striking an obstacle on the road, and which also greatly obviates strain to the vehicle. The omnibus body is extremely well designed and built of selected timber framing wood and aluminum panels with plate-glass windows which can be made movable for summer use. These 'buses are the result of many years of practical experience and are built throughout with the most scrupulous care. It is now contemplated to introduce them in Chicago.

Quite different from these large motor 'buses are the thirty odd old style touring cars driven on Prince's Street in Edinburgh. These are not under the management of any company but are owned by private individuals, a few of the chauffeurs driving their own machines. The regular run is between the Post Office and Haymarket, a distance of one and a third miles. The motor cars cover the distance in five minutes, including stops, while the electric traction cars always take about fifteen minutes for the same run. Many residence streets open directly off from Prince's Street, so the route is a particularly popular one. Fare on the motor 'bus is two cents and even with this small amount the owners average $5 a day on each car and $10 on Saturdays. Operators are paid $8.75 a week. In the summer and during the hunting season, an owner of a car sometimes gets $100 a week for automobile and driver, and consequently during August and September there is a dearth of flying gasoline monsters on historic old Prince's street in Edinburgh.

The Wheels for Automobiles.*

The great fault of wire wheels is their lack of transverse strength. A collision with the curb, as after a skid, will easily buckle them. Again, the strength of the wire wheel lies in the distribution of its stresses among a large number of elements, each of very little strength if taken alone. Consequently, if the wheel is out of shape or the spokes are not evenly tightened, these elements may give way successively one after another in a very brief time, although their collective resistance would have been ample for the given shock.

As the manufacture of wood wheels is a highly specialized art, it is undertaken by but few automobile makers, and those only the largest. The materials used in artillery hub wheels are in general about as follows: The hubs are of steel of 55,000 to 60,000 pounds tensile strength, experience having shown that bronze hubs have little or no strength to resist transverse shocks like those due to skidding. The spokes are hickory or acacia. After long contesting the superiority of the former, we must at length recognize that, weight for weight, hickory of good quality (which is relatively scarce and costly) is preferable to any other wood, acacia included, for the spokes. This is due to the length of its fibres. Hickory will tear, but it never breaks short; the splintered fibres still cling together. It is not rare, after a bad smash, such as a collision with a wall or tree, to find a hickory wheel with every spoke which carries a sprocket wheel bolt cracked, but with not one spoke broken clear across. If any other wood is used, a certain number of complete fractures will always be found. However, for other than racing machines, acacia may be used with generally satisfactory results.

The felloes may be made of hickory, acacia or ash. They are generally made in halves and suitably joined. Both these and the spokes are made in special machines, the latter in lathes which duplicate the irregular form with absolute precision and great rapidity. To prevent variation on account of exposure to the air, the several elements are assembled as soon as made, and the rim shrunk on. The slight heating of the felloe when the rim is shrunk on is not enough to carbonize it, but just sufficient to prevent subsequent decay. The compression of the wheel when the rim cools is almost 20 millimeters (0.8 in.) for ordinary sizes.

The "dish" or angle of the spokes to the plane of the hub flanges, is most often 5 to 6 per cent., but is sometimes as low as two. It is generally different for the front and rear wheels In the latter, it has the drawback of producing a twist in the chain, but, with wood wheels at least, it would be highly undesirable to discard it on that

*Extract from a paper read by Commandant Ferrus at the International Automobile Congress, Paris, 1903.

account. The dished construction in effect renders the wheel a cone, and greatly increases its transverse resistance. If a dished wheel collapses under side shock, it is because either the rim bursts or the spokes crush endwise. Of course, only the wheels on one side have this property for any given shock, but these are usually the wheels—as in a side slip—which must bear the brunt of it.

With dished wheels the axle must be given a camber such that the lower spokes will be vertical, and the axle spindles must be tapered so that the bottom surface of the spindle, where most of the weight is carried, is horizontal. Thus there remains no appreciable tendency for the hub to crowd endwise either on or off the spindle, except that due to the tendency of the dished wheels to roll in circles instead of straight lines. A slight complication is introduced by the fact that when the vehicle is in motion the bearing surface of the front spindles is not precisely at the bottom, but a little ahead of that point, since the wheels are being pushed against a resistance. Consequently, when the spindles are tapered, the planes of the wheels will diverge a little toward the front, if there is any looseness in the hub bearings; and to counteract this it is common to adjust the steering knuckle arms to give the wheels a slight set toward each other when at rest. On account of the pull of the chain, the contrary effect will obtain with the rear wheels, but as these are set much less off from the vertical no allowance is usually made for it.

The wheels for heavy commercial vehicles, if they have steel tires, are subjected to very heavy shocks. If the wheels are measurably elastic, these shocks will be distributed throughout their structure, and the wheels will not suffer; but if the wheels are rigid the shocks will be localized and the wheels speedily destroyed. This applies mainly to the driving wheels, as the others can usually be fitted with solid rubber tires of width proportioned to the load they must carry.

Adapted from "Das Schnauferl," Munich.

The Spare Tire Misjudged.

Mother—Say, Jim, what for have they got that ring there back on the wagon?

Son—Why, that is since all them fellers came through here in the flood, they have taken to carrying life preservers.

LICENSED MAKERS ADOPT FOREIGN POLICY AND ELECT OFFICERS.

The first annual meeting of the Association of Licensed Automobile Manufacturers, organized last March, was held during Wednesday and Thursday of last week at the headquarters of the organization in the Transit Building, New York, followed by a meeting of the executive committee Friday morning. The election of officers for the ensuing year resulted in the re-election of all the members of the executive committee with but one exception. Frederick L. Smith, of the Olds Motor Works, was re-elected president; Charles Clifton, of the Geo. N. Pierce Co., was elected vice-president to succeed B. H. Warburton, of the Searchmont Automobile Co.; E. H. Cutler, of the Knox Automobile Co. was elected secretary, and H. B. Joy, of the Packard Motor Car Co., was elected treasurer, the offices of secretary and treasurer, formerly held by Mr. Joy, having been separated. Messrs. Smith, Clifton and Cutler, together with M. J. Budlong, of the Electric Vehicle Co., and S. T. Davis, Jr., of the Locomobile Co. of America, comprise the executive committee. George H. Day was continued in office as general manager.

The meeting of the members fully indorsed the policy followed by the executive committee and the action taken and proposed upon matters in the committee's hands, the reports read being received with satisfaction. Trade conditions were discussed at length and proposed future action of the association considered.

Importers Join the Association.

Four importers of foreign machines have just been taken into the Association. These are Smith & Mabley, the Central Automobile Company, the Standard Automobile Company, and E. B. Gallaher, all of New York. The four concerns together represent as importers the Panhard, Mercedes, Mors, Decauville, Renault, Peugeot, C. G. V., and Georges Richard-Brasier cars. Under agreement to pay to the Association a royalty of 2 1-2 per cent. upon the selling price of the cars, these importers will expect to be protected in the exclusive sale of foreign machines in the United States.

These licensees have organized the Importers' Branch of the A. L. A. M., with A. D. Proctor Smith president and E. B. Gallaher secretary, and have formulated a policy to bring action against one or more unlicensed dealers in imported cars. Prominent among the "outside" importers of well-known foreign makes are the F. A. La Roche Company, selling Darracqs; Alexander Fisher, selling the Rochet-Schneider; the Societe Franco-Americaine d' Automobiles, which imports Clement, Panhard and Renault cars; the American De Dietrich Company, importing De Dietrich machines and Kenneth Skinner, of Boston, who imports motors and parts from France. Some of these may join the Licensed Association later, as it is the policy of the A. L. A. M. to give all standard makes of foreign automobiles proper representation in this country, if they are willing, it having been decided the competition of foreign cars, with the handicap of an import duty of 45 per cent. against American makers will not be a detriment to the American industry. It is even stated that the sale of such machines will be encouraged, and that by the licensing of a number of reputable importers having agreements with their European agents not to sell to others for export to this country, constituting in effect exclusive American agencies, the sale of foreign machines will be stimulated.

Suit Started Against a User.

On November 5, the Licensed Association started suit against the O. J. Gude Co., the big signboard advertising concern of New York, as a private purchaser and owner of an automobile that is alleged to infringe the Selden patent. It happens that the machine in question is a Ford car, made by the Ford Motor Company, of Detroit, which has been publicly inviting suit by advertising that it would protect any purchaser of one of its machines and against which concern the Association recently instituted proceedings as an alleged infringing manufacturer. However, the officers of the plantiff organization assert that it was not the make of machine that influenced the bringing of suit against the Gude Co., but the fact that it was a powerful company with ample means for defence as a private owner.

The bringing of the action is asserted to be with the object of dispelling the popular misbelief that an individual can buy an article of manufacture that infringes a patent without making himself liable to legal action and the recovery of damages. Counsel for the Association states that the patent laws are explicit upon this point and that it has been upheld in United States court decisions. Suits brought under the Selden patent are now pending against the Ford Motor Co., as a manufacturer, C. A. Duerr & Co. as an agent and the O. J. Gude Co. as a purchaser of an alleged infringing make of automobile—in each case the Ford car.

Road Rights in Ohio.

Cleveland, Nov. 9.—As soon as the opportunity presents itself, some of the leading owners of automobiles in this city propose to get through the State Legislature a new bill governing the use of automobiles on highways. They have discovered that automobiles under the present State law, passed April 25, 1902, are classed with bicycles and are allowed only one-third of the road, when meeting other vehicles.

Skidding on the Race Track Analyzed.

When a racing machine is sent at high speed around the turns of a circular track, how much does the effect of centrifugal force, in throwing more weight on the outer and less on the inner wheels, actually amount to? And to what extent does the right or left position of the driver's seat,

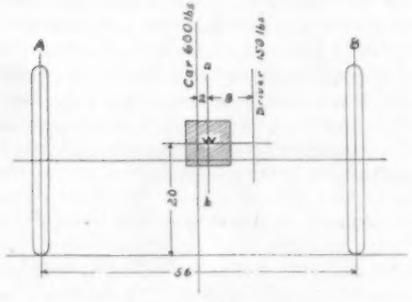


FIG. 1.

when he has no companion, affect this shifting of weight?

The popular answer would probably be that in so heavy a thing as a mile-a-minute racer, the location of the driver cuts very little figure; but some racing men, and quite probably many of them, have found that under the above conditions their inner rear wheels have so little grip at the turns that it is necessary to ballast the left side of the body, or that end of the axle, with a pig of lead, to keep the left wheel on the ground. And the mishap to poor Champion two weeks ago, which was apparently due to the same cause, shows that the question may involve much more than mere loss of speed.

Let us suppose the practical case outlined in Fig. 1. The rear axle carries 600 pounds of the weight of a light machine, symmetrically disposed, and 150 pounds of the driver's weight. The seat is 10 inches to the right of the center. Then the center of gravity of all the weight (750 pounds) on this axle will be in the plane *a b*, two inches from the central plane. The gauge is 56 inches, and when the machine is level and traveling straight ahead the weights on the wheels are inversely as the distances of the latter from plane *a b*, or 348 and 402 pounds, respectively, on *A* and *B*.

Suppose the car to be traveling on a track with 1-4 mile straights and 1-4 mile turns. Then the curve of the turn, if uniform, is that of a half-mile circle, and if a 1:06 speed be maintained on the turns the car would go around a half-mile circle about 1.82 times in the minute. The radius of the turn, measured as usual, three feet from the pole, will be about 420 feet, to which five feet may be added for clearance. The formula for centrifugal force is

$$F = .00033\ W\ R\ N_2$$

in which W is the weight in pounds, R the radius of the turn in feet, and N the number of revolutions per minute. Substituting,

$$F = .00033 \times 750 \times 425 \times 3.31$$

$$F = 350 \text{ pounds, about.}$$

Now suppose first that the turns are flat, and that the center of gravity of the weight on the rear axle is 20 inches above the ground. Instead of being concentrated at W (Fig. 1), this weight may be imagined as concentrated at two points C D (Fig. 2), in the planes of the wheels, in the proportion of 348 pounds at C to 402 pounds at D. The centrifugal force F will be divided proportionately between these imaginary masses, F_1 equals 162 pounds acting horizontally at C, and F_2 equals 188 pounds at D.

It is now clear that each point of contact m n of the tires with the ground is a fulcrum, about which the lines Cm, Dn, and m n form the arms of bell-cranks, and the forces acting upward or downward at points m n can be considered separately for each force F_1 or F_2. As force F_1 acts at right angles to line Cm, the downward thrust at n will be equal to $\frac{F_1 \times Cm}{m\ n}$ and the

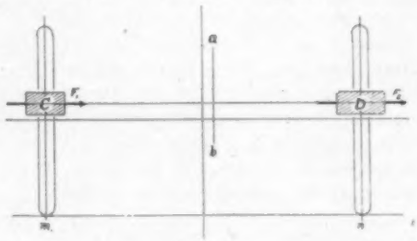


FIG. 2.

upward lift at m due to the same force will also be $\frac{F_1 \times Cm}{m\ n}$. Similarly the upward lift at m due to F_2 will be (since Cm and Dn are equal) $\frac{F_2 \times Cm}{m\ n}$, and the downward thrust at n the same. Consequently the total lift at m and the total downward force at n are each equal to $\frac{Cm\ (F_1 + F_2)}{m\ n}$ $= \frac{F \times Cm}{m\ n}$. For the values assumed, this equals 125 pounds. That is, the net load at m is 348 minus 125 or 223 pounds, and that at n is 402 plus 125 or 427 pounds.

If now the driver sits on the left side, the net weight at m and n will be 402 minus 125, or 277 pounds on A, and 348 plus 125, or 473 pounds on B—a difference of 54 pounds on the inner and 46 pounds on the outer wheel. It is clear that even with the driver so placed, the disparity of wheel loads is great enough to be troublesome if not dangerous, while with the driver on the right side, the inner wheel carries less than a third of the whole weight at a time when it urgently needs its full share.

It will be noted that if the inner wheel is so lightened that it cannot act as a fulcrum for its full share of the centrifugal force, the excess force is simply carried over to the other wheel, where its effect is the same as before, the net weights on A and B being unchanged.

If now it be desired to examine the effect of banking at the turns, we may begin by assuming the angle of bank necessary to neutralize, as usual, the centrifugal force of a two-minute speed. This force will be 105 pounds for a total weight of 750, or a ratio of .135. Applying the principle of the triangle of forces, we find that this ratio should be the tangent of the required angle, which is therefore approximately 7 1-2 degrees. From this the relations seen in Fig. 3 follow. With the driver on the right, the centre of gravity is nearly equidistant from vertical lines through m and n, and the wheels therefore carry (when at rest) nearly equal loads—384 and 366 pounds, respectively.

Of the centrifugal force F, about 100 pounds is neutralized by the banking, its only effect being to increase by about three pounds the wheel pressures at m and n, and render these pressures perpendicular to the slope of the bank. The remainder, 250 pounds may be conceived as divided between C and D in proportion to the weight of the latter, making 128 and 122 pounds. The bell-crank arms this time are Cm, Dn, and m n, as shown; and the lift at m, perpendicular to the surface, is 96 pounds, and the added pressure at n the same. Adding three pounds at each wheel for the effect of the neutralized centrifugal force, the net weights are approximately 290 pounds on m and 465 on n.

If the driver sits on the left, the center of gravity will be shifted a scant four inches, and C and D become 440 and 310 pounds, respectively. The center of gravity is now half an inch lower, and the tipping effect due to F reduced, say, from 96 to 94 pounds. Allowing three pounds as before on each wheel, we get net pressures of substantially 350 and 406 pounds at m and n, respectively, or practically a

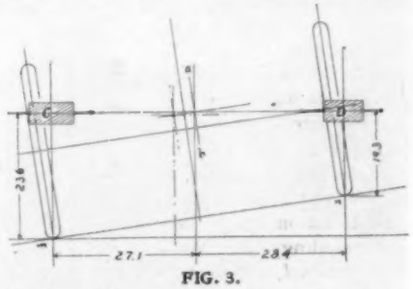


FIG. 3.

simple exchange of weights from those obtaining on the straights.

That is, although there is still an unbalanced force of nearly 250 pounds tending to skid the machine sidewise, the difference in grip between the two wheels is less than 60 pounds. With the driver on the right, the difference becomes practically 175 pounds, or three times as great—a condition which on a soft track cannot fail to be very dangerous.

PROVINCIAL CLUBS IN ENGLAND CHAFE UNDER LONDON RULE.

Conditions existing in England that are very similar to those in the United States which resulted in the organization of the American Automobile Association and the revival of the American Motor League two years ago at the Chicago automobile show have created considerable dissatisfaction among the provincial clubs in England with the affiliation scheme of the Automobile Club of Great Britain and Ireland, and have resulted in the proposal to organize the Association of Federated Provincial Automobile and Motor Cycling Clubs.

There are fourteen provincial clubs now affiliated with the A. C. G. B. & I. and eighteen such clubs which are not affiliated. Affiliation with the London organization costs each country club $2.50 for every member. Every affiliated member receives the *Automobile Club Journal* weekly, but has no privileges of the clubhouse at 119 Piccadilly when in London. As the affiliation fees cost a small club with fifty members $125 a year, the members feel considerable dissatisfaction with the present arrangement, considering that they get insufficient return for their money and that they have no voice in the conduct of the parent club affairs, while the unaffiliated clubs fail to see the advantage of boosting the London organization at so much expense to themselves.

The Reading Automobile Club has sent circular letters to all of the clubs proposing the organization of a federation of clubs "for mutual defence and generally promoting the interests of provincial automobilism," in which the fees will be considably less than the cost of affiliation with the A. C. G. B. & I., and in which individual motorists who are not members of any club can have associate membership entitling them to the protection of the organization and to most of the benefits accruing to members of the federated clubs.

Opinions of various club officers differ as to the feasibility and desirability of the creation of such an organization, some favoring it while others feel that to increase the number of governing organizations will result in diminishing the influence of each, that some of the advantages offered by the proposed federation are already held out by the existing Motor Union, and that by presenting the matter in the proper way to the A. C. G. B. & I. a reduction of the affiliation fee can be secured, perhaps not including subscription to the *Automobile Club Journal*, and that more privileges can be obtained.

With great adroitness *La France Automobile*, October 24, manages to present excellent engravings of a three-cylinder Wolverine two-cycle, reversible motor and of a French hunting and fishing launch, to which it is fitted, without mentioning with one word that the motor is an American product. That would never do at present when it is the object to create a marine motor industry in France. But the description of the motor and the launch is very satisfying, nevertheless; perhaps because it was originally printed in *Le Yacht*.

Systematic Handicapping as an Elixir of Life for Track Racing.

So long as handicapping was merely a guess-work method for bringing about a race between uneven competitors—rather than to have no race at all—it was difficult to take it seriously. Only by closing one's mind deliberately to the facts could it be overlooked that the whole contest took place in the handicapper's fancy and that the performance on the track was a mere after-demonstration showing how close he could guess, but not how fast the cars were.

Given a formula, however, by which it may be theoretically calculated what speed a car of a certain construction should be able to reach, a handicapping system may be imagined by which every handicap race becomes an efficiency contest, showing how near each car comes to a certain theoretical standard of excellence.

An attempt has been made of late in New York to raise handicapping to this higher level, and the innovation does not only promise—if successful—to infuse much more vitality in automobile track racing than this form of sport has usually been credited with, but represents a strictly American development which may be copied and surpassed in other countries and then reimported to this country with foreign approval, unless the racing world here takes hold of the infant and rears it to its full growth—whatever this may prove to be.

The first experiments with the new method was made at the Empire City track meet, October 3, and was followed by a more methodic application of the fundamental idea at the Brighton Beach race meet Oct. 31.

In the following is given an account of the system by its originator, who, however, does not claim for it as many possibilities in practice as it seems to possess in undefiled theory.

The allowances in the Brighton Handicap were calculated on a basis similar in principle to that employed for the Empire Handicap of October 30, but with some modification of the coefficients used in the formula. Although the result of the second race showed that there is still something to be done before the formula can be regarded as fully satisfactory, it is worth noting that most of the spreading out of the contestants in that race was due to causes outside of the calculations—such as darkness and the poor condition of the track—and also to the fact that, as applied to track racing, the formula is still so recent that the handicapper, Mr. Towle, frankly admitted that he hesitated sometimes to trust his own figures, and stretched the formula in several cases, where it gave results which seemed on general principle to be too high or too low. In all of these cases the actual speeds proved to be very near the calculated, showing that the formula was in reality more trustworthy than had been supposed.

The formula itself is derived, by transformation and some change of coefficients, from a formula for driving force proposed in 1897 by two French engineers, MM. Julien and Boramé. It is apparent that any practical system of handicapping must be based on something else than the horsepower of the motors, since this will depend partly on the speed, which is itself the unknown quantity sought. The driving force at the tires, on the other hand, may be calculated with fair accuracy if the cylinder sizes, ratio of gearing, and style of transmission are known. In the French formula the driving force is balanced against the hub friction, the tire resistance and the wind resistance; and an equation is thus formed. The hub friction will depend mainly on the character of the bearings and the weight of the car; the tire resistance is taken as proportional to the product of the weight and the velocity, and the wind resistance in proportion to the product of the square of the velocity and some function of the projected front area. Owing to the variations in size and form, the last factor must of course be determined empirically and by comparison of different machines.

The original formula was based only on speeds up to 40 kilometers per hour, and was designed for dry macadam roads. It is as follows:

$$F = .025\ W + .0007\ W\ V + .0048\ A\ V\ 2,$$

in which F is the driving force in kilogs.; W is the weight of car and passengers; V the velocity in kiloms. per hour; and A the projected front area in square meters. The coefficient .025 is for plain hub bearings.

This is the formula used by M. Henri André in calculating the power curves reproduced in THE AUTOMOBILE of May 9. last. The formula does not appear to have been put to practical use in the country of its origin, and in adapting it to track racing it was necessary to modify the coefficients somewhat. As there appears to be no very easy way of separating the various factors for experimental determination, the coefficients used are still more or less subject to change. At present the following seems about right for straightaway tracks:

$$F = .025\ W + 3\ W\ V + 30.000\ A\ V\ 2$$

in which F and W are in pounds, A in square feet, and V in fraction of a mile per *second*. For ball or roller hub bearings, .025 W becomes .01 W. For a heavy track of stiff tires, 3 W V may become

4 *W V* or more. *A* will vary from 4 to 8 for most racing machines.

For handicapping purposes it is only necessary to calculate *F* from known and assumed data, and to transform the formula so as to solve for the elapsed time per mile in seconds. On a circular track allowance must of course be made for the difference in time between such a track and a straightaway.

To obtain *F*, a mean effective pressure is first assumed for the engine, according to the cylinder dimensions and probable speed. For convenience, this m.e.p. is taken net, or less than the actual m.e.p. by a percentage allowing for internal friction. Its value at normal engine speeds will be from 55 to 65 pounds per square inch for ordinary engines. The bore and stroke, the number of cylinders, the circumference of the rear wheels, the ratio of gearing on the high speed, and the character of the transmission system are also known. If

P =net m.e.p.
a =piston area in sq. in.
L =stroke in inches.
R =ratio of gearing.
N =number of cylinders (4-cycle)

then the work done in one revolution of the rear wheels will be

$$1\text{-}2\ (P \times a \times L \times R \times N).$$

Neglecting the transmission losses, the driving force *F* will be the above work divided by the circumference of the rear wheels. From the value of *F* thus obtained must be subtracted a percentage for loss in transmission. This percentage will vary according to the nature of the transmission system, and allowances of from 5 to 20 or 25 per cent., according to the type of machine, have been found to give satisafctory results.

When a car with a road gear is speeded on the track, its motor turns at a rate more or less above its normal, and the m.e.p. is correspondingly reduced. What this reduction will amount to can only be determined by trial calculations, supplemented by a body of data from known machines. Some test calculations indicate that the m.e.p. may be as low as 40 pounds under such conditions.

The disappointing result obtained in the Empire Handicap race on October 3 by the use of the formula system, here referred to, was due to the fact that the winning machine was entered with a low gear, and no data were then available from which its m.e.p. at track speed could be estimated. Consequently the formula was set aside and a guess substituted.

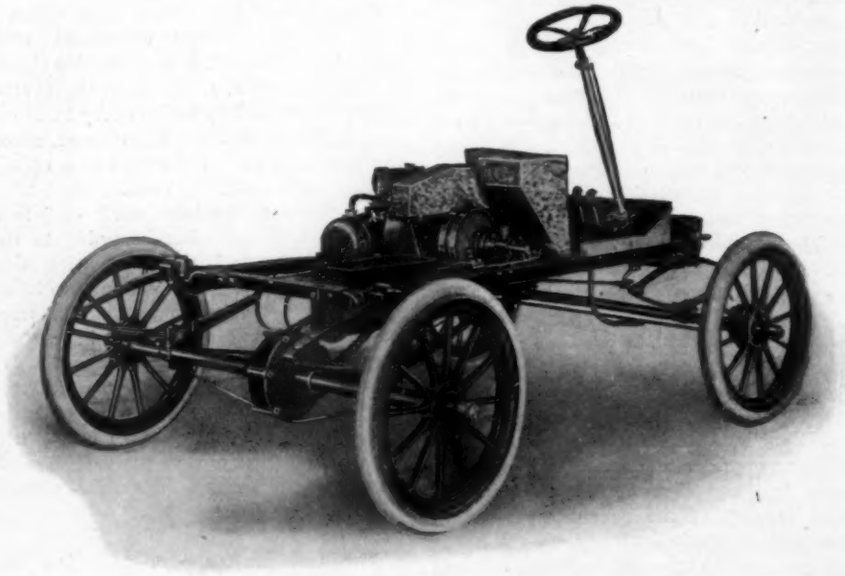
When it is considered that in the Brighton Handicap there were six entries—not counting the steamer—which were either new to the track or specially geared (even the Cadillac having a different gear from that which it entered the Empire track race) it will be seen that the result was much better than any ordinary guesswork could have achieved. Indeed, it may be said that the formula needs very little change to make it safe to adhere rigorously to the calculated allowances, as representing very closely what the machine ought to do. It seems altogether probable that this will be done in the next race in which this formula is employed.

One point made clear by the Brighton event is that a handicap race should not be put at the end of the program, because the lght is then apt to be poor, and the drivers of the fast machines are quite properly afraid to make their best speed.

The Ford Company's Runabout.

The Ford 8-hp. runabout, of whose chassis a cut is shown herewith, is among the latest runabouts of what has come to be known as the American type. In one respect it makes a step in advance of others of its kind, in that its motor has two cylinders instead of one. These are opposed horizontally, and vibration is thereby almost wholly eliminated.

The running gear comprises an angle-iron frame, trussed rear axle, and full elliptic springs. The tires are 28 by 3 inches, and the wheel base is 6 feet.



CHASSIS OF THE FORD 1904 RUNABOUT.

The motor and the planetary speed-changing gear are grouped together on a secondary frame, which may be removed from the main frame without disturbing them. As the motor flywheel is between the crankcase and gear, the long overhang of the latter makes an outboard bearing necessary, and this is carried by the secondary frame referred to.

The motor itself has 4 by 4-inch cylinders, a 2 to-1 shaft immediately below the crankshaft, and cam-lifted inlet as well as exhaust valves. The crankcase, instead of being cast in the form of a box with a cover, is split vertically in the plane of the two shafts. On top of it is carried an oil tank with four sight-feeds, from which the oil goes to the cylinders and main bearings under pressure from the crankcase. Coupled to the end of the motor shaft is a centrifugal pump, which takes water from the small tank seen between and above the flywheel and planetary gear, and sends it to the bank of radiating tubes at the front of the car. From these it goes to the motor and back to the tank. Jump spark ignition is used, with two sets of dry cells.

The transmission gearing differs from most of its sort in having no internal gears. Two units, each having three pinions cut from a solid block of steel, perform the functions of the usual intermediates. The clutch is of the disc type, with pressure applied to three wide, thin radial springs whose rubbing ends are faced with leather. The usual two forward speeds and reverse are obtained. The slow-speed friction band may be used for braking, but the regular brake is applied to the differential by a pedal under the right foot. The slow speed is operated by a pedal under the left foot, and a small pedal to the right controls the throttle. The spark timing is varied by hand.

The "Fordmobile" sells at $750 for the runabout without top, $800 with leather top, and $850 with tonneau.

New Auto Station in Rochester.

ROCHESTER, Nov. 9.—Joseph J. Mandery has just purchased the property 150 to 160 South Avenue, and will erect a new building, 66 feet front by 165 feet long, exclusively for his automobile business. It will be fitted with all the latest and most up-to-date appliances and machinery to make a complete establishment for the sale, repair and care of automobiles. The left side front will be a show room for new goods only, about 30 by 50 feet; back of that a show room for second-hand autos left on sale. On the right front will be the offices for bookkeeper, stenographer and

office force. The entrance will be 16 feet wide and 16 feet high. The front will be fitted with extra large plate glass windows. There will be all modern conveniences for patrons, including ladies' waiting room. The repair shop proper will be at the extreme rear of the building, and will be fitted with modern machinery. A battery room will be equipped to take care of battery repairs, and plenty of charging boards of latest Westinghouse design. The establishment, after it is completed, will be open day and night.

Mr. Mandery will continue his policy of handling well-known makes of cars, and will carry a large stock to enable him to make prompt deliveries.

Mr. Mandery was the first automobile dealer in Western New York.

STRINGENT ORDINANCE PASSES LOWER HOUSE OF KANSAS CITY COUNCIL.

KANSAS CITY, MO., NOV. 4.—The lower house of the city council took another step toward enacting an automobile ordinance last night by passing the most stringent measure yet proposed for "regulating" motorists. The upper house and the mayor will yet have to approve the ordinance before it can become effective. The speed limit in the proposed law is fixed at six miles an hour in the business district and ten miles elsewhere in the city. Other provisions require front and rear lamps and white license numbers four inches high. One clause that is ludicrous and impossible of enforcement on Kansas City's narrow streets is this: "Automobiles shall not pass closer than within ten feet of another vehicle."

All operators are to be examined by a board consisting of the superintendent of streets and two motorists, to be appointed by the mayor. A fee of $3 is to be charged for the first license and $1 for renewals. This would make the expense of running an automobile for the next twelve months as follows: State license, $2; city vehicle tax, $5.10; city examination, $3; total, $10.10. For each succeeding year the fees would be $7.10. A horsedrawn vehicle pays but $2.

In addition to all this, it is provided that bell signals be given outside the business district. Speed is to be reduced at all crossings. No automobile with unusually loud exhaust is to be permitted on the streets. Violation of any provision in the ordinance is made punishable by a fine of from $5 to $500.

The uncertainty regarding the automobile ordinance has kept many intending purchasers from investing in automobiles until the question is settled in a reasonable way.

Farmers elsewhere have stopped automobiles by shooting at their tires! Now a Kentucky physician has accomplished the same purpose by aiming at the automobilist's head. He didn't pull the trigger and the motorist has put him under bonds

Kerosene Oil Burners for Steam Vehicles.

An oil burner for steam vehicles for which exceptional claims are made in regard to perfect combustion and ease of cleaning, is illustrated in the accompanying cut. It is the invention of F. E. Youngs, of San Francisco, and has been in use under some of the livery wagons of the Mobile Carriage Company of that city for a number of months.

The body of the burner is cast-iron, with the top and bottom plates cast together. The burner holes in the top plate take the form of truncated cones or thimbles, rising 3-8 of an inch above the top of the plate. These are drilled out 9-16 inch in diameter, and centrally below each hole the bottom plate is drilled out 1-2 inch in diameter. One-half inch steel tubes, cut to the proper length, are expanded tightly into the bottom holes, and their tops come flush with the tops of the cones. This gives a clear space 1-32 inch wide around each tube for the gas, and prevents any buckling of the plates or loosening of tubes from unequal expansion As the upper plate is 1-4 inch thick, the annular gas space in each cone is 5-8 inch high. This of itself has been found sufficient to prevent any back-firing, but to protect the upper plate still further, the makers recommend that it be covered to the tops of the cones with asbestos plaster. Thus an absolutely indestructible burner is said to be produced.

THE YOUNGS KEROSENE OIL BURNER.

The mixing chamber between the upper and lower plates is divided into halves by two vertical partitions lying parallel to the tubes *A B* on top, and each half is fed by its own mixing tube, making in effect two independent burners. Between the two partitions there is a narrow diametrical space, which widens out at the ends nearest the observer to extend under all three tubes. This is the mixing chamber for the pilot light. The pilot light comprises small burner jets under all three tubes, and takes oil, separately from the main burner through the connection *D*. It is vaporized over the pilot light, and passes, taking up air through bulb *E*, into tube *C*. This tube bends down, passes through the top plate of the burner, and turns back on itself in the central mixing space referred to. The cast-iron cover *F* serves merely to concentrate the flames of the pilot light on the three tubes. The oil for the main burners enters a double header, connecting tubes *A B* on the further side of the burner. Here a diaphragm regulator of the usual sort controls the feed of the liquid oil, which is first warmed and finally vaporized over the pilot light before it passes down to the needle jets at the mouths of the mixing tubes. The main burner may be extinguished and the pilot light left burning as long as desired. The steam pressure gradually falls, but the generators are kept so hot by the pilot light that the burner is at all times ready to give the maximum fire without attention. Tubes *A* and *B* are of heavy copper, 1-2 inch pipe size or about 7-8 inch outside, and they waste very slowly.

The special feature claimed for the burner is that, by reason of the arrangement and proportion of the vaporizing parts, the oil is gasified with neither a tarry nor a hard carbon deposit in tubes *A B*. These gather only a loose carbon powder, which may be cleansed out without difficulty with a shotgun cleaning brush. For this purpose the screw plugs in the ends of the tubes are made removable without disturbing other parts. This may be done an indefinite number of times without causing leakage.

About 1 1-4 inches below the bottom plate is a plate *G*. The space above this is walled in with high sheet iron doors hinged at the top. These doors swing inward but not outward, and they catch a breeze from whatever quarter and force it upward to the fire. This gives a forced draft which is said to be effective in any

wind. Another useful kink is the two mica windows seen one to each side of the mixing tubes. These windows have large mica disks inserted between the outer shell and the asbestos lining, and held each by a central rivet just below the hole. When the mica gets clouded, which is claimed to be not till after several weeks of use, a penknife is used to turn the disc and present a clean surface to the window. As the disc is thus progressively rotated, the soot on its inner surface rubs off against the asbestos and the mica is ready for use again.

The inventor states that kerosene, gasoline, and the cheap California distillate which is chemically about midway between the other two products, have been used with equal success in this burner. As the distillate costs but ten cents a gallon in San Francisco, against 25 cents for gasoline, and as it has 25 per cent. greater heating power, Mr. Youngs reckons the fuel cost for a given evaporation of water to be one-third that with gasoline.

This burner is now being made by the Youngs Automobile Company, of 39 Wall Street, New York, and 1814 Market Street, San Francisco.

The Mackle-Thompson Runabout.

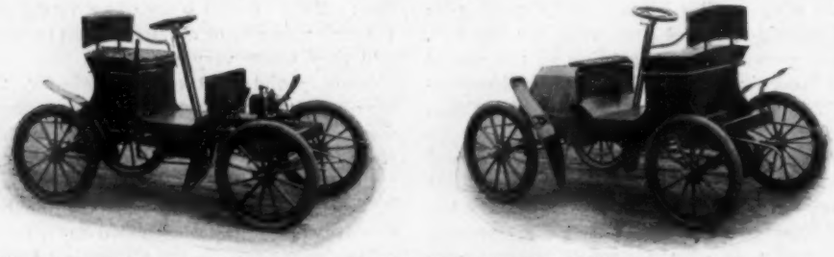
The 650-pound two-passenger automobile shown with and without the hood herewith, has been placed before the public by the Mackle-Thompson Automobile Company of Elizabeth, N. J. It is driven by a five-brake-horsepower single-cylinder, vertical, air-cooled motor, carried at the front. The engine and all of the driving mechanism is carried directly on the frame, no operating parts being attached to the body, which can be detached by removing four bolts.

The frame is made of one piece of angle-iron, bent into a quadrangle, and is supported by four three-quarter elliptic springs. The wheels are of the wood artillery type, 30 inches in diameter and fitted with 2 1-2 -inch tires.

The speed change mechanism is of the individual clutch pattern affording three forward and one reverse speeds. All the gears are enclosed and run in oil, noiselessly, and with a minimum of wear. Transmission is by a ball-bearing jointed shaft direct connected to the spur gear differential, all the gears of which are also enclosed and run in oil.

Ignition is by dynamo. The gasoline tank will hold more than enough fuel for a full day's run.

This little car is equipped with wheel steering, and mud fenders over all wheels, and in general appearance resembles the foreign voiturettes. It is regularly finished in automobile red and upholstered in leather.



THE MACKLE-THOMPSON RUNABOUT.

NEW YORK TO BOSTON IN 48 HOURS WITH IRON-NICKEL BATTERY.

Charles L. Edgar's Columbia electric service wagon which H. M. Wilson drove from Boston to New York recently, following the initial electric Boston-New York run made by F. A. Babcock, Jr., of Buffalo, in a Buffalo electric, has established a new record in the return trip from New York to Boston. The total elapsed time for the trip was 48 hours 30 minutes, and the actual running time 22 hours 52 minutes, the average running time being 10.8 miles an hour. The cyclometer reading for the trip was 249 1-2 miles.

The start was made from the Central Automobile Station, 1684 Broadway, New York, at 5.35 o'clock on a Friday morning, Mr. Wilson driving. Stamford, Conn., was reached at 9.10 A. M. The battery was put on a high charging rate for three hours, and the car left Stamford at 12.36 P. M. New Haven was reached at 4.18 P. M., and the battery was given a little less than a three-hours' charge, the car leaving for Hartford at 7.30 P. M., driven by F. H. Sadler of the Edison Storage Battery Company.

Hartford was reached at 11.05 P. M., and the battery was again put on charge for three hours. Hartford was left at 3 A. M. Saturday, and at 4.30 A. M. the car ran off the road in the dark at a sharp turn that was not anticipated. It required the services of a team of horses to get the car back to the road, as the wheels settled to the hubs in the soft mud in the ditch. Owing to the delay of an hour and forty-five minutes, Springfield was not reached until 7.20 A. M. The battery was charged for four hours, twenty-five minutes at the highest possible rate, and the start was made from Springfield at 1.07 P. M., the car being in charge of Mr. Wilson and W. G. Bee, of the Edison Storage Battery Company.

Bad roads were encountered after leaving Springfield, and for much of the way the motors required double the normal current. After climbing the long, steep grade at Spencer, the speed had greatly diminished, so a stop was made at the electric lighting plant at that place in the hope of obtaining a short charge. After an hour's delay waiting for the engineer to come, it was found that there were no facilities for charging, so it but remained to keep on and be as economical of current as possible. When Worcester was reached the battery was so low that it was necessary to push the car up the incline to the garage. A charge of three hours forty-five minutes at a high rate was then given the battery, and Messrs. Wilson, Sadler and Bee started off at 1.50 A. M. Sunday for Boston, and arrived at the Electric Vehicle Company's station on Stanhope Street at 6.05 A. M.

The car, which has double motor equipment, carried sixty-eight cells of Edison battery, and weighed, without driver, 3,150 pounds. Solid tires were used.

Mementos for Owners and Drivers.

BY R. B. BRAMWELL.

To keep pneumatic tires in good condition they should be well inflated at all times. If they are allowed to become more or less deflated the rims will cut the tires, the canvas layers will be stretched out of shape and the tire lugs will pull unevenly and eventually tear the fabric.

When the vehicle is to be washed, always inflate the tires first. This will prevent water working in between the rim and the tire, eventually causing the canvas and rubber to decay.

Care should be taken to prevent gasoline and lubricating oil from coming in contact with the tires, as either will disintegrate the rubber quickly. It should be needless to caution users of electric cars against allowing sulphuric acid or the battery electrolyte from splashing on the tires for the same reason. The worst feature of the decomposition is that the condition of the rubber is not always apparent from a superficial examination, but may be discovered only after it is too late to apply a remedy.

Care in Driving.

In driving an electric vehicle the operator should be careful to throw the controller lever quickly from notch to notch. If he desires to run as far as possible on a single battery charge he should use the brake sparingly. Much can be accomplished by "jockeying" through the traffic, and recourse to the brake will seldom be required, after the operator has become proficient. It should not be forgotten that every time the brake is applied to reduce the speed of the vehicle extra power will be required to accelerate it again, whereas if the obstruction that made braking necessary had been ap-

proached slowly it would probably have moved before it became necessary to apply the brakes. In this event power would have been saved in the approach and afterward.

Exposions in Carbureter.

Sharp explosions in the carbureter frequently occur if the inlet valve spring is too weak, especially if the gas mixture is not of the proper richness, in which event the slow burning mixture may continue aflame near the end of the exhaust stroke when the reduced pressure in the combustion chamber may be insufficient to keep the inlet valve shut, thus allowing the burning gas to ignite the gas mixture in the induction tube The remedy is a new inlet valve spring; or, possibly, if the old springs are slightly opened and stretched out the trouble will disappear.

Freezing of Cooling Water.

If a glycerine anti-freezing solution is to be used in the circulating system, it should be remembered that the fluid will attack the inner walls of any rubber tubing that may be included in the circuit, although it appears to have no appreciable effect on metal tubing. A solution formed of dissolving about one pound of salt in one gallon of water, or a greater quantity of liquid in that proportion has been recommended as an anti-freezing mixture.

As the water evaporates from the original supply of anti-freezing solution the loss should be made good by pouring plain water into the circulatory system.

(To be continued.)

AGGRESSIVE INDEPENDENT POLICY OUTLINED BY A. A. A. DIRECTORS.

At a meeting of the directors of the American Automobile Association in the rooms of the Automobile Club of America, on Tuesday afternoon last, Secretary S. M. Butler, also secretary of the Automobile Club of America, tendered his resignation, stating that he found it impossible to do full justice to the brilliant field of work open for the Association, being fully occupied with the club's affairs. The board appointed C. H. Gillette as his successor.

With a liberal expansion policy in view involving new headquarters centrally located in New York City, and apart from the club, the board also appointed Harlan W. Whipple, A. R. Pardington and C .H. Gillette a committee on scope and plans. The annual meeting will be held in Chicago during the Automobile Show there. The Association already has 2,000 members in fifteen clubs, and will begin an active campaign to increase the individual membership. Dr. Julius A. Chase was chairman of the meeting, and the others present were Winthrop E. Scarritt, Harlan W. Whipple, A. R. Pardington and F. G. Webb.

DIVERSE APPLICATIONS OF THE OLDS MECHANICAL CONSTRUCTION.

The facility with which the running gear and mechanism of the small pleasure automobile can be adapted to more utilitarian uses is exemplified by the makers of the Oldsmobile, who have just brought out the small delivery wagon shown herewith. This vehicle has a covered body for light delivery service fitted to the ordinary runabout chassis. The body

NEW OLDS DELIVERY WAGON.

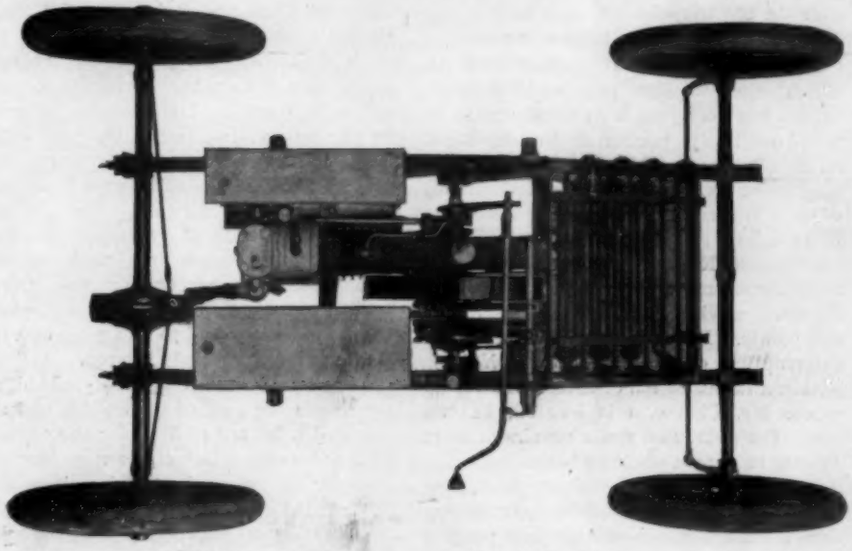
is longer than the runabout body and carries a box having one cubic yard inside capacity. The outside dimensions of the vehicle are 8 feet 2 inches over all length, 5 feet 2 inches extreme width, 6 feet 8 inches in height. The wheel base is 6 feet and the tread 4 feet 7 inches. The wheels are of the artillery type and are fitted with 3-inch detachable tires. Care is taken in construction to provide for excluding all odor of the gasoline from the interior of the body, and where it is desired to keep the contents warm, as in delivering bakers' goods, flowers, and in extremely cold weather, fruit, eggs and milk, an arrangement can be added for conveying some of the heat radiated from the motor into the interior of the body.

There is unquestionably an enormous field for such a vehicle when its reliability, economy, and simplicity have been impressed upon the small retail merchants who have long delivery routes or have frequent need of means for delivering special rush orders. Nearly three times as much distance can be covered in a given time with the light motor delivery wagon as with the customary horse and wagon, and it can be run 100 miles without refilling the gasoline and water tanks.

The engine is the standard Oldsmobile 4 1-2 horsepower single-cylinder motor, 4 1-2 inches bore by 6 inches stroke, fitted with the regular planetary transmission giving two forward speeds and reverse. Some improvements have been made in the motor to give it greater efficiency. It has been lightened by reducing the water-jacket to about one-half the length of the cylinder and casting radiating flanges on the lower half of the cylinder, as seen in the accompanying engraving of the Oldsmobile chassis. The water-jacket now covers only the combustion chamber and the travel of the piston head. In all other respects the new Olds engine is the same as that heretofore used in the runabout.

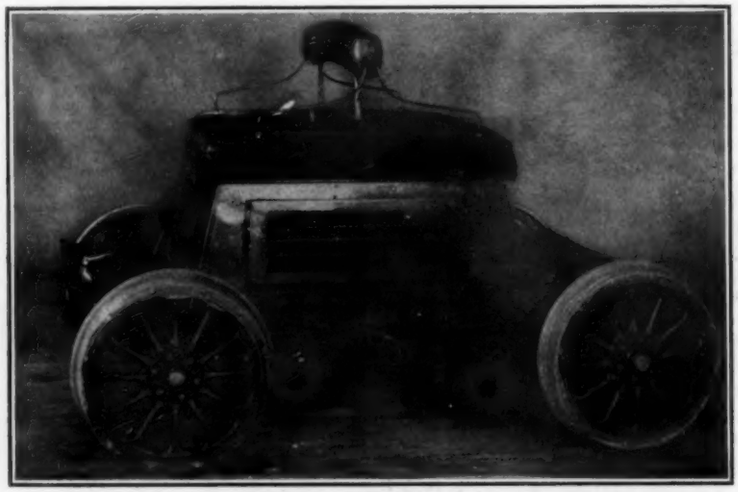
The Railroad Inspection Car.

A more novel transformation of the runabout and a more unique adaptation of the motor vehicle are illustrated in the engraving of the Oldsmobile railroad inspection car. This machine is designed to take the place so long occupied by the familiar clumsy manumotive wood and iron tricycle used by section superintendents. It has the regular 4 1-2 horsepower Olds motor, which has been mounted upon a suitable frame equipped with four 20-inch pressed steel flanged car wheels of very light construction. The axles and underframe are of cold rolled steel with outer casings of 11 guage steel tubing. There



CHASSIS OF NEW OLDS DELIVERY WAGON.

are no steering knuckles and no steering mechanism, since the rails guide the car, and differential mechanism is also not required since no short turns are made. The inspection car is fitted with a special body having seats for four passengers arranged dos-a-dos. It will ascend any grade up to the point where traction fails, will travel from 80 to 100 miles with one filling of the tanks, and, on the smooth, hard rails will attain to a speed of thirty-



OLDS RAILWAY INSPECTION CAR.

five miles on the level, which points, in addition to the saving of muscular effort, give the little car a tremendous advantage over the old tricycle.

IN TELEPHONE REPAIR SERVICE.

Among the many diversified uses to which the regular runabout pleasure vehicle has been put, is its employment in telephone line inspection and repair work. A. R. Champlin, of Newton, Kansas, has been using an Oldsmobile for the past two years. He is the owner of the large independent system of telephones in use throughout Kansas. He is now negotiating for six more to place in the hands of his linemen who will be stationed at different points. From the time a break or an interruption of the line occurs, if it is within a radius of ten or fifteen miles from where Mr. Champlin is located, he can reach the point and make repairs in from twenty minutes to half an hour.

M. Getchell, of Williamsburg, Kas., has also been using an Oldsmobile in connection with his telephone line for the past year; in fact, the West has been the leader in utilizing automobiles for general line repairs.

Red Indian Buys Red Car.

The first automobile sold to an Indian was purchased by "Big Mouth," chief of the Crows, Billings, Montana. Maurice Wolfe of Carmi, Ill., made the sale, and the Indian made him agree to have the car painted, at Wolfe's expense, the reddest red that could be bought in Billings before the purchase money was paid over.

Rollicking Pittsburg Club Run.

PITTSBURG, Nov. 9.—The Automobile Club of Pittsburg held its first auto run last Saturday, November 7. The trip was to Butler and return, a distance of about eighty miles. The day's sport was marred by four malicious boys, who fired 22-caliber Flobert rifles at the motorists. Two shots struck men in one of the automobiles, William A. Graff, of Penn Avenue, was wounded in the crown of his head, the ball sinking its full depth into the scalp. The second ball struck the visor of William Badger's cap and went twice through the cloth of the cap, just grazing the wearer's scalp. Neither man, fortunately, was seriously injured. The shooting recurred on the return trip, five miles from Pittsburg. The car was speeding along at a quick pace when the shots were heard and the two men fell forward. The car was stopped and Mr. Graff's wound bound temporarily. The miscreants took to the woods and the motor car was driven rapidly to a surgeon's office in town, where the wound was found to be a scalp cut, the skull not being seriously injured.

The Automobile Club met within an hour from the time of the trouble and announced a reward of $100 for the capture of the shooters. Detectives were sent out at once, but no clue has yet been found.

With the exception of the shooting, the run was a great success; in fact, the most enjoyable event of the fall season. Sixty motorists participated and thirty-five members drove their own cars. Four women went as guests and one woman drove her own car most of the distance. Mrs. E. E. Keller, one of the most enthusiastic motorists in the Iron City, accompanied her husband. Thomas Reed Hartley, with his White touring car, acted as pilot, at the same time scattering confetti along the route to be followed. He was accompanied by Dr. M. J. Moore and Horace Bell, and so enthusiastically did these friends whirl out the confetti from the great sacks that it kept the natives guessing whether the affair was a foreign wedding or an advertising scheme.

The run started from the Hotel Schenley at 8.30, the route being downtown, over the boulevard, and thus out over the Ninth Street bridge to Allegheny, out the Perrysville Road and the "Three Degree" road to Butler, a distance of forty miles. Some said the "three degrees" were good, bad, and indifferent—mostly the second; others affirmed the roads were 3 per cent. good and the other 97 per cent. execrable. The first hour's ride in the cold, crisp air was over frozen roads extremely bumpy, but as the sun warmed hospitably to the travelers the deep-rutted roads were thawed, though not improved thereby. The smart motor cars soon looked as mud-plastered as any at the finish of the New York-Pittsburg endurance run and, skidding excepted, behaved as well, too.

Many brushes occurred on the level stretches, and the occasion was give and take with mud-splashing and witty pleasantries. Everybody was interested in Linford Smith, who drove a steam machine which for some reason demanded extra drinks. It became necessary for the driver to stop every few hundred yards to fill the water tank. His friends say that there is no given distance in America that has so many pumps with wooden buckets

THE PILOT CAR IN CLUB RUN.

attached—made for Smith—as has the roadside between Pittsburg and Butler.

The pilot car arrived in Butler first, followed by Paul C. and C. E. Wolf in an Autocar, and A. R. Neeb, D. Collins and Mr. Lloyd in a Peerless, the two parties reaching the headquarters at just the same time, 11.45 A. M. Mr. Mashey and Mr. Kurtzy followed closely in a Pierce; then came Mr. and Mrs. E. E. Keller in their Haynes-Apperson, Mr. Clemson in a Winton, George Flinn in a Peugeot, Mr. Banker in an Autocar, Mr. Straub in his White, W. J. Lyons in a Riker, the club committee in a Winton, the press representatives in a

Pierce car sent by Banker's. Half an hour after the arrival of these and several other at practically the same time, Linford Smith, in his steam car, appeared.

The assembled company had taken sides in a discussion as to whether Smith would arrive before lunch was over, but he came in smiling before the first course was well begun. and the vanquished half had to

ON PITTSBURG CLUB RUN.—W. LINFORD SMITH IN TROUBLE.

treat accordingly. Butler treated her motorists royally, serving a fine dinner to the visitors, all of whom brought keenly whetted appetites with them. It was a jolly occasion, every man telling incidents of the trip, proposing some toast or starting a motor song. Eager residents outside looked the cars over, cheered the revelry within and started the visitors off with cheers at 2.15, the hour of leaving Butler.

The return journey was over the Butler Plank Road to Talley Cavey and then to Etna over the Flinn Road. The going was much better than in the morning and several local records were made. Fred Neeb's car, driven by D. Collins, was the first to reach Pittsburg, covering the forty miles in two hours. The others finished in rapid succession in the following order: Paul C. Wolf, Thomas R. Hartley, James Francis Burke, Percy Donner, George Flinn, E. E. Keller, William A. Graff, Reuben Miller, Jr., J. Marshall Lockhart, and W. C. Temple. The last car was at the garage before 6.15. On the return trip there were no break downs or punctures.

Linford Smith seemed fated to be brought into prominence quite as much in the afternoon as during the morning. The joke on him really was that he had invited a friend and a doctor to go to Butler in his car. It was thought a wise precaution to have a physician in the company, but so fortunate had been the morning run that the doctor returned at once by train, and Mr. Brewster, Mr. Smith's guest, was placed in a larger car. The latter car meeting with some obstruction, both occupants got out to investigate the machine. Mr. Brewster knows nothing about motors but, enthusiastic and a good Samaritan, he was in the middle of the road in the midst of the melee when Linford Smith's car dashed round a near corner, both pedestrian and car dodged the same way, and the steam machine went over the friend. He is crippled and will be obliged to go on crutches for a month, but he takes his wound proudly, and says he is going to buy a motor car. Five of Pittsburg's expert horsemen went along on this automobile run and, like Mr. Brewster, confess their conversion to the horseless vehicle.

Members and guests spent the evening at the Country Club and then and there decided to have frequent runs during the remaining fall days. The relaxation and recreation of the trip was extolled. "Tired? Yes, but a good tired! I'd like to go again to-morrow!" was the consensus of opinion. The committee that planned the details of the run was composed of Thomas R. Hartley, W. L. Elkins and George L. Hailman. James Francis Burke should be mentioned as setting the pace in fun-making at the luncheon. George H. Flinn is president of the club, and W. Linford Smith the secretary.

Wachusett Club Elects Officers.

FITCHBURG, Mass., Oct. 29.—The Wachusett Automobile Club recently held its annual banquet and business meeting at the Johnsonia House, Fitchburg, and elected the following officers for the coming year: President, Charles F. Putnam; secretary, L. H. Greenwood; treasurer, G. P. Grant, Jr.; directors, Henry R. Smith, Leominster, Mass.; Dr. Mossman, Westminster, Mass.; Daniel Simonds, Fitchburg, Mass. The club was reported to be in a very thriving condition for a young organization, having a balance in the treasury of over $500.

NEW JERSEY AUTOMOBILE AND MOTOR CLUB PERFECTED.

The New Jersey Automobile and Motor Club, which was formed on May 29 last, was perfected at a meeting in the Board of Trade rooms, Newark, N. J., on Thursday, October 22. Permanent officers were elected as follows: President, B. M. Shanley; vice-president, Frederick R. Pratt; treasurer, James C. Coleman; board of governors, Charles W. Baker, Eugene Sargeant, Chester R. Hoag, Dr. H. C. Harris, J. H. Wood, Angus Sinclair and Dr. G. Carlton Brown. The board of governors afterward selected William A. Stimpson as secretary.

The meeting was called to order by Eugene Sargeant, and Dr. James R. English was made chairman. At the meeting in May when the constitution and by-laws came up for adoption the clause for legal aid to members unjustly accused of violating speed and road ordinances was not inserted. A committee was appointed to see lawyers and make a report at the next meeting regarding what it would cost the club to defend a suit of that nature. Dr. English, speaking for the committee stated that he had conferred with two law firms, and that one of them had agreed to act as counsel for the club, giving such legal advice as its members might need and advising as to suits, for $250 a year, but not to defend any suits, for which the regular office fees will be demanded. However, he further stated that the cost would not be more than $250 to carry a case up through the highest court, possibly not as much.

The club will hold its third hill-climbing contest on Eagle Rock hill, West Orange, on Thanksgiving Day, November 26.

Woman's Automobile Club Projected.

The fact that women are barred from membership in the different automobile clubs will, in all probability, eventuate in the formation in New York of a woman's automobile club. A movement is reported to be on foot among the wives of prominent members of the Automobile Club of America to organize, the success of the the Ladies' Automobile Club of London having furnished the example. Many women of the fashionable set use their automobiles to go back and forth between their country homes in Westchester County, at Tuxedo, and on Long Island, and wish to have a place to put up their cars and partake of a little rest, with perhaps a bit of

luncheon, while in the city. It is proposed to make the social side of the club most prominent. The formation of such a club would tend to make automobiling more popular with society women, and the handling of gasoline cars by women more common.

The Automobile Club of Bloomington, Ill., sixteen strong, participated in a run to Leroy and return on Friday, October 23.

Frederick J. Wagner, secretary of the Buffalo Automobile Club, is organizing a party of local motorists to attend the New York automobile show in January.

The Automobile Club of Philadelphia has taken steps to secure a club house in the center of the city, where the sphere of usefulness of the organization can be enlarged.

The university students at Princeton, N. J., have organized an automobile club, with the following officers: President, J. H. Reed, 1905; vice-president, Childs Frick, 1905; secretary and treasurer, S. H. Bird, 1906.

Automobile clubs in many parts of the country are planning to conduct club tours to the St. Louis Exposition next summer. The Grand Rapids club is already confident that it will have a party of at least thirty for the trip.

The Vermont Automobile Club, at its annual meeting, elected the following officers for the ensuing year: President, Dr. L. Hazen, Burlington; first vice-president, W. B. Fonda, St. Albans; second vice-president, C. C. Warren, Waterbury; secretary and treasurer, W. D. Woolston, Springfield.

The Automobile Club of Sacramento, Cal., elected the following officers at its annual meeting recently: President, W. E. Lovdall; vice-president, Dr. S. E. Simmons; secretary, H. G. Hay; treasurer, Rudolf Van Norden. These, with G. B. Campbell, are included in the board of directors.

The Long Island Automobile Club held its opening "stag" on Wednesday evening, October 21, at the clubrooms at 32 Hanson Place, Brooklyn, and the garage below stairs was overcrowded with the cars of members who attended. The entertainment consisted of a varied program of vaudeville features and a Bohemian supper. About eighty were in attendance.

The weekly club nights at the Automobile Club of America were resumed Tuesday evening last, with a "general experience" meeting. Technical lectures will be a feature of the club nights. Lamar Lyndon will give illustrated lectures on storage batteries, and Charles J. Glidden has been invited to address the club on his recent "Farthest North" automobile trip in Europe. Mr. Glidden has had many lantern slides made from photographs he took on the trip, and will use these to illustrate his remarks.

Correspondence

The Balancing of Motors.

Editor THE AUTOMOBILE:

Having had some little experience with gasoline motors in the automobile business, and having done some little experimenting and thinking on these lines, I have always thought that all engine builders, so far as I know, make a mistake in the position of placing counter-weight in relation to crank.

I have never, in all my reading, found an article bearing on this subject.

Several weeks ago I built, out of odd pieces and wheels, a foot-power lathe. I made a tread on the bail principle which was pretty heavy, the only thing I could find for a flywheel being a thirty-inch round rim wheel that had been used on mill machinery.

After weighing the front of my bail treadle—which was on its pivots at back—including connecting rods (two, with a crank at each end of shaft), I bored holes in rim of flywheel between two sprockets, and by putting a board on each side, filled it with lead of same weight as my treadle. Setting the flywheel with the counter-weight exactly opposite the crank, I discovered that my lathe would not run steadily. So by shifting flywheel around to several positions, I finally located it about 10 or 12 degrees behind the directly opposite point of crank, which properly balanced it, and I could run it as steadily as a clock.

I am not sure that I can explain why this was the case, but I believe that some experiments on this line would develop a motor without vibration.

Can you, or your readers, give me some light on this question?

E. C. SHUMARD,
Pres. the Special Motor Vehicle Co.

Cincinnati, Nov. 4.

Possibly foot-power applied to a treadle is not exactly the equivalent of piston pressure. We imagine an explanation of the peculiarity noted might be found in the weight of the foot lingering on the treadle after the impulse has ceased.

Anent Three-Cylinder Engines.

Editor THE AUTOMOBILE:

Can you tell me what is the objection to the 3-cylinder engine? I notice that same are rarely used by the French makers who are supposed to have the most experience. The "Toledo" people have about given up making the 3-cylinder car in favor of the 4-cylinder.

C. J. C.

San Antonio, Texas, Nov. 2.

Really, we do not know of any objection that holds good and strong at the present time. Of course, as compared with a two-cylinder engine, there is additional cost and complication. As compared with a four-cylinder engine, there is the need for greater accuracy in machine work and castings, if the four-cylinder engine is composed of two pairs of cylinders, cast and machined separately. It was formerly considered more difficult to make an engine shaft with the cranks 120 degrees apart than one with the cranks 90 or 180 degrees apart, but we understand that this is now a past stage. So long as ignition gave much trouble it was an unquestioned drawback to the three-cylinder motor that failure of ignition in one cylinder produced a rythmical irregularity in impulse which was unpleasant, but this objection, too, has given way—at least in part—under the advancement in carburation and ignition methods. The temporary conditions, however, produced a vogue for the four-cylinder engine, and the vogue remains while most of the reasons for it have fallen away. For facts which point to a revival of favor for the three-cylinder type we would refer C. J. C. to a letter by the Thomas Motor Company in these columns.

Wants Court Decisions to Help Suit.

Editor THE AUTOMOBILE:

Some time ago I was arrested for the "wilful destruction of property," and my trial is set before the Superior Court in January.

While proceeding along a country road near Salem, Oregon, I met a horse and buggy, and as I came near them I slowed down and coasted slowly by after cutting the power off. After getting some distance away I again turned the spark on, and the explosions of the motor frightened the horse and he ran away, and after going about half a mile he fell dead. The owner finding there was no way he could sue me for the horse, had me arrested for wilful destruction of property. This trial will come up before a jury of farmers and they are prejudiced against automobiles as yet, and I am afraid that I will not get a fair deal.

My attorneys have advised me to try and get some information on similar cases that have come up, and it's along this line that I have written to you. If you know of any cases that have been tried along the lines similar to this will you kindly cite me where to get some information and reports of the same? Trusting that you may be able to give me some information that will assist me, I remain

E. E. MACCLANAHAN.

105 Sixth St., Portland, Oregon.

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Decisions in such cases as our correspondent's have, as a rule, been rendered only in the lower courts, and have frequently been so flagrantly contrary to the best judicial practice in other affairs of life that THE AUTOMOBILE saw no reason for making a classified collection of them. In a few instances when higher courts were reached it was, however, well enough

established that the decision always should hinge upon the facts in each case, the main question being always the same, namely: "Did the defendant, all the attending circumstances considered, act with that consideration for the equal rights of others which would be exercised by a good citizen and father of a family?" This is the principle handed down from Roman law. It is part of our Common Law and in the higher courts usually overrides any special statute legislation to the contrary that may have been passed by a State Legislature, at least so far as damages or criminal responsibility is concerned. It is probably true, however, that lower courts would as a rule, be influenced by an array of previous legal decisions whether they bear strictly on the case in hand or not, and we call upon those among our readers who have had unpleasant experience of this kind to communicate with Mr. MacClanahan without delay.

In order to save time in future cases we would also ask laymen and lawyers who possess definite information of legal decisions in automobile suits to place such information on file with THE AUTOMOBILE, so that it may become accessible to those in need of it.

Nearly all local automobile clubs include among the objects of their organization that of protecting motorists against unjust aggression, and should have some material of value to our correspondent. A list of these clubs will be found in another column.

Auto Barred From Cemetery.

Editor THE AUTOMOBILE:

By a ruling of the board of directors of the Hollywood Cemetery Association, I am debarred from visiting my section with my automobile, while other vehicles are allowed to enter during prescribed hours.

Be kind enough, if possible, to cite me any court decision bearing on such or any similar points. Is there any list of trial cases showing equal rights to automobiles that would help me out?

G. A. T.

Richmond, Va., Nov. 4.

If any of our readers can supply the information, THE AUTOMOBILE will take pleasure in forwarding it to the correspondent. The equal rights of automobiles have been affirmed in a number of instances, by court decision as well as by rulings, but it occurs to us that the question of rights is not the only one we would consider in a cemetery. So long as the automobile is not altogether the customary vehicle in a community it doubtless engenders a train of ideas which clashes to some extent with the reverential mood in which visitors to a graveyard love to dwell. We believe mental attitudes of this religious or semi-religious description are protected in many ways in other relations of life, mainly by a tradition which few care to violate without urgent necessity. To our mind it would appear best, in the case of G. A. T., to await the time when the directors of the cemetery affairs shall be able to look upon an automobile as a matter-of-fact conveyance and not as an object of curiosity and possible aversion. Meanwhile, G. A. T. would have the satisfaction of knowing that his standpoint is the modern and advanced one to which his surroundings unavoidably must come in time.

Pins Faith to Three Cylinders.

Editor THE AUTOMOBILE:

Thinking possibly it may interest your readers to know why we have adopted the triple cylinder motor for our 1904 Thomas American Light Roadster Automobile we take pleasure in submitting for their consideration the following:

It seemed desirable in order to meet the popular demand, to produce a touring car of great speed and hill-climbing power, coupled with lightness and strength. In order to get enough power to satisfy this demand it became necessary to adopt a multiple-cylinder motor, and to choose either a two, three or four-cylinder model. After a very thorough investigation and inquiry among domestic and foreign makers of motors for automobile, marine and electric lighting purposes, besides spending many thousands of dollars in experimentation in our own works, we were compelled to decide in favor of the triple-cylinder motor as meeting automobile requirements in the highest degree.

That we are not alone in our conclusions, is shown by the fact that the Westinghouse works build this type exclusively where a steady high speed without vibration is necessary. The Leeds Marine Equipment Company, Bridgeport, Conn., use and recommend them for launches when great speed, simplicity, high efficiency and greatest power is required. They make no four-cylinder motors, because, as they say, "It would mean just one-third more working parts to look after." Every automobilist in this country is familiar with Duryea's successful three-cylinder automobile motor.

Turning to the foreign automobile makers we find some of the best known among them adopting triple-cylinder motors, after exhaustive tests. Among these are such people as Panhard, of France, and the English firms manufacturing the Maudslay, Brooke, Argyle and Humber cars, all of whose latest models are thus equipped.

The editor of a leading English journal says in a recent letter, "The three-cylinder motor is distinctly superior and with less complications than the four cylinder."

Westinghouse Machine Company says, "Inasmuch as three-cylinder engines are eminently satisfactory for electric lighting, as built by us, it would be folly to complicate all its parts for operation."

Quoting from a letter received from the Wolverine Motor Works, Grand Rapids, Mich.: "One of the principal reasons why we adopted triple-cylinders is because we can balance the engine better and get a more uniform exhaust than by any other number of cylinders."

Simplicity is always desired, therefore, quoting again from a prominent manufacturer: "The least number of cylinders that will give the light weight, steady torque and compact arrangement should be adopted, and since the triple cylinder does this, it is unquestionably preferable."

E. R. THOMAS MOTOR CO.,
By S. F. HEATH, Sales Manager.

Buffalo, Nov. 6.

Anti-Freezing Solution Again.

Editor THE AUTOMOBILE:

As winter is coming apace and I wish to use my machine during the cold weather, I would like to ask a few pertinent questions:

1. What is the best anti-freezing solution or substance?

2. What amount of calcium chloride per gallon of water is the best to use?

3. How is glycerine used, pure or diluted with water?

4. Is there any effect of the action of the electricity and the calcium chloride on the solder in the tanks?

G. W. C.

Detroit, Mich.

1. For temperatures above zero Fahrenheit, use a solution of calcium chloride of a specific gravity of 1.15 as shown by a densimeter. For temperatures as low as 15 degrees below, increase the density to 1.20.

2. About 1 1-2 pounds to one gallon.

3. Two or three parts of glycerine are mixed with eight or seven parts of water. To this should be added one part of lime to fifteen parts of the glycerine.

4. The calcium chloride solution will have a corrosive effect on zinc and galvanized tanks and if it is acid may effect solder. If the presence of acid is shown by a test with litmus paper, the solution should be neutralized with unslaked lime. The loss from evaporation should be replenished with clear water.

The glycerine solution will not affect the metal, and a non-corrosive solution can be made by adding to a 10 per cent. glycerine-solution three-quarters of a pound of calcium chloride.

Any such solution should be drawn off and renewed once a month.

New York Trade Notes.

Fire caused almost a panic in one of the leading New York garages a few days ago, but the manager rallied his men, set all to work with fire extinguishers and in five minutes the flames which were rising high above one of the machines were subdued with little injury to the car itself and none to contiguous automobiles. "There is no necessity of fright," said the manager. "Just keep cool and you can put such a fire out without damage."

An air-cushioned frame is being tested by C. L. Horack, the inventor, who has it fitted to a Gasmobile of 3,000 pounds weight. Those who have tried the new invention say that it allows of the use of solid tires without robbing the machine of any comforts.

One of the younger generation of chauffeurs joined his elders while in his riding clothes one day last week at a bar and gave his order. "You're a minor," said the bartender. "No, I ain't," replied the youngster, "I'm a chauffeur." That seemingly settled the matter, for he got his drink.

A 24-horsepower Panhard, belonging to Mr. M. C. Hermann, carries eight people, two in the front seats, five in the King of Belgians body and the chauffeur on a special seat on the floor at the feet of the owner. This is said to be the largest tonneau constructed.

The Franco-Americaine d'Automobiles is remodeling two stables at Nos. 2 and 4 East 27th Street, New York, into a single garage which will have sixty feet frontage. The salesroom and storage department will be on the first floor, and the offices, repair shop and storeroom on the upper floors, the building being three stories high.

T. J. Heller, formerly New York agent for the steel ball department of the Federal Manufacturing Company, has severed his connection with that company and taken the sales management of the ball business of the Standard Roller Bearing Company, Philadelphia, Pa., which concern recently purchased the ball business of the Grant Tool Company. Mr. Heller will make his headquarters at the company's offices at 48th Street and Girard Avenue, Philadelphia.

The Winton agency in New York will be housed by December 15 in handsome quarters at 54th Street and Broadway, facing 103 feet on Broadway. A new building is being constructed there of pressed brick and lime stone trimmings. This adjoins a building on the corner and both will be used, the first floor and basement of the corner building which is 41 x 60 feet, and the basement, first and second floors of the new building which is 62 x 80 feet. In the corner building will be located the showroom and offices. In the new building the basement will be used for a stockroom, the first floor for storage and the second floor for the repair shop. The building will be fitted out with a big elevator capable of accommodating the largest car and a turn table which will be an innovation. The floors will all be of concrete and the front will be entirely of plate glass.

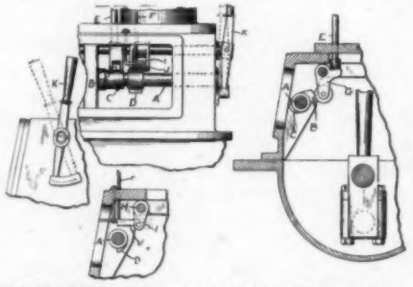
Lubrication of all bearings in the new 24-hp. Léon Bollée car is accomplished by air pressure, a few strokes of a hand air pump starting up sufficient pressure to last for a day's driving.

Patents

Valve and Igniter Gear.

No. 741,064. J. A. Nickelson of New York.

The shaft *A* carries exhaust valve cam *B*, relief cam *C* (for easy starting), and sparker cam *D*. *E* is the valve push-rod and *F* the igniter push-rod. Bell-crank *G* oscillates loosely on shaft *H*, and is shifted thereby so that its roller may or may not engage *C*. Arms *I*, on which the trip fingers *J* of the igniter mechanism oscillate, are rigid with



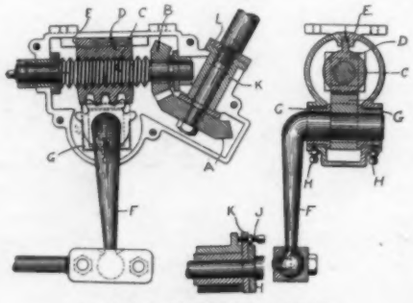
NICKELSON VALVE AND IGNITER GEAR.

H, and are wide enough so that lateral shifting of *H* to bring *C* into action does not affect the ignition. By rotating *H* slightly, arms *I* are advanced or withdrawn and the time of ignition correspondingly changed without affecting the valve mechanism. The lever *K* is used to shift *H*.

Steering Gear.

No. 743,357.—A. L. Waugh, of Cambridge, Mass.

The inventor's object here is to produce a strictly irreversible steering gear, and incidentally one having very little wear



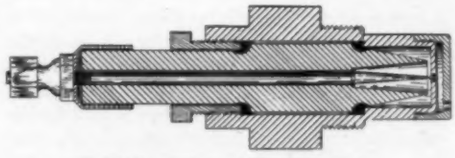
WAUGH STEERING GEAR.

and in which the lost motion can at any time be taken up by suitable adjustments. Rotation of the steering wheel is, therefore, made to act through the bevel pinions *A B* on the screw *C*, whose pitch is sufficiently fine that no shock suffered by the road wheels can rotate it. Nut *D* is guided by the tongue *E*, and acts on arm *F*, through the rack teeth shown. The square boxes *GG* may be raised by screws *H* to compensate for wear in the teeth, and screw *J* (see detail) draws the flanged bushing *K* upward to take up wear in the thrust collar *L*. Similar adjustments are provided for the bushings at the ends of screw *C*.

Spark Plug.

No. 741,684.—J. H. Lehman of New York.

The inner end of the porcelain or lava tube is coned internally and externally, giving a considerable surface over which a spark would have to travel before a carbon



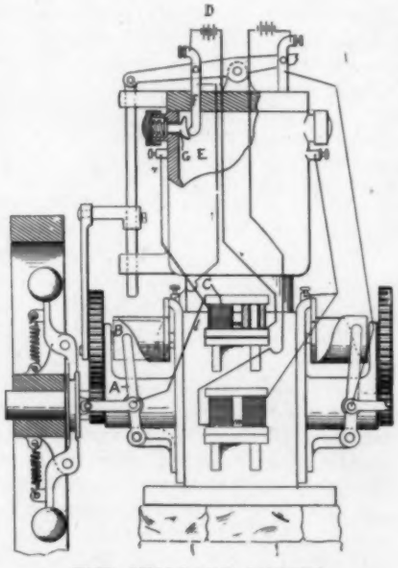
LEHMAN JUMP SPARK PLUG.

deposit at this point could short-circuit the plug. The stem is tapered and the spark jumps from its end to the edges of a small central hole in the metal shell, which completely encloses the inner end of the plug except where the spark jumps. The pumping in and out of gas is claimed to keep the edges of the hole perfectly clean. The special feature of the plug is the use of a second cap over the first, with a small space between and with the hole in the outer cap eccentric to the other, so that any oil entering the outer hole will be deposited before it reaches the inner one.

Novel Primary Current Igniter.

No. 739,943.—E. J. Stoddard of Detroit, Mich.

This is an attempt to overcome the drawbacks of the primary current igniter



THE STODDARD IGNITER.

in a new way. The essence of the device is the use of two breaks in series—one inside and the other outside the cylinder—and, by actuating the outside break first, to utilize the momentary high-tension

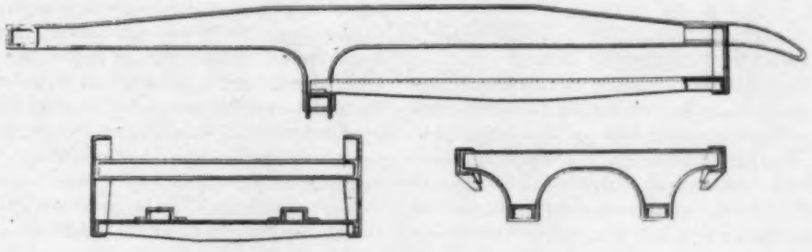
induced current to overcome any resistance to perfect contact that may exist at the second or inside point of break. This inside break is actuated immediately after the first, while the induced current is at its height, and has the effect of prolonging the latter. The useful spark is, of course, at the second break, and owing to their construction its electrodes seldom need cleaning, while the electrodes of the first or timing break are always accessible for this purpose.

In the drawing two identical sets of apparatus are used, which give alternate sparks, the purpose being to give a longer time for contact and "building up" of the current at high speeds than is possible with one set. The outside contact is made between brush *A* and the metallic strip *B*, whose contacting edge is cut diagonally to give an early contact at high speeds, the brush being shifted over it by the governor shown. The time of break is the same for all speeds. In series with this are the coil *C*, whose core has a nearly closed magnetic circuit in order to get the largest number of lines of force possible, the battery *D*, and the second break *E*. The latter comprises the reciprocating rod *F*, and the plunger *G*, with a concave surface on which *F* rubs. When *G* moves up, *F* moves in until its collar comes against the cylinder wall. Then, just after *A* and *B* have separated, contact is broken at *E* and the gap between *F* and *G* is slowly widened. The device is claimed by its inventor to work very well and to dispense altogether with the need for a "hammer-break" spark.

Pressed Steel Frame.

No. 742,272.—P. Arbel of Paris, France.

The feature of this frame is that its principal members, instead of being abutted at the joints and held together by corner plates, are fitted into each other and forced tightly together. The upper drawing shows one of the side sills of such a frame, with one member of a false frame supported on two transverse members attached in this manner. The joints may be riveted if desired for greater security. The left-hand smaller section is taken vertically through the rear false frame



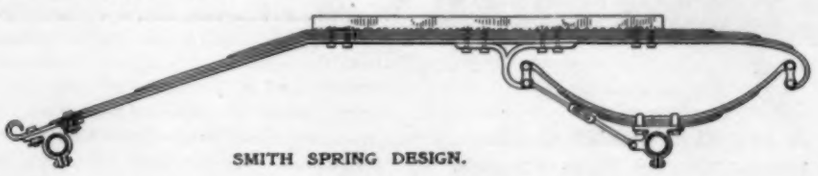
ARBEL FRAME FOR MOTOR CARS.

hangers, looking backward. The other small section shows the front cross member.

Spring Arrangement.

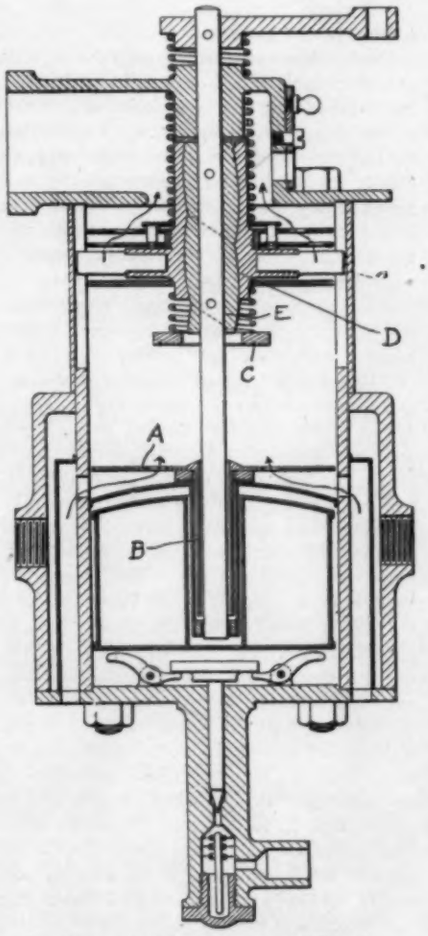
No. 743,402.—F. L. Smith of Detroit.

This is a proposed modification of the



SMITH SPRING DESIGN.

Olds spring design; intended to give a better support to the pull of the chain than



F. H. SMITH'S CARBURETER.

the usual side springs. It consists essentially in the rear spring and distance rod combination shown. A special form of bolt is used at the front end of the main spring, permitting the second half to be carried forward as shown and still have lengthwise freedom of movement as the spring is flexed.

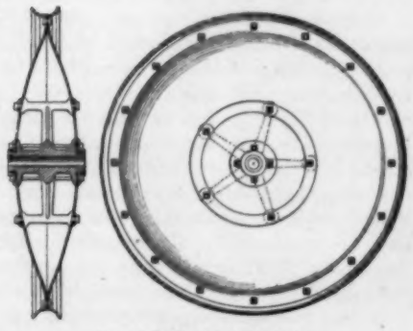
Carbureter.

No. 742,920.—F. H. Smith of Datchet, England.

This is something of an oddity in carbureters. The entering air follows the course of the arrows, and lifts the perforated disc *A*, attached to the inner tube *B*, which dips into the gasoline in the central well *A*, is sucked up as far as buffer *C*, exposing to the air the gasoline with which the tube is wet. This is repeated at each suction stroke, from which it would appear that this carbureter is intended for single-cylinder engines only. *C* is carried on a sleeve *D*, which moves up or down on a steep-pitch screw *E* attached to rod *F*. Thus the lift of *A* is varied according to the mixture required.

Shotwell's Metallic Wheel.

A new design of metallic wheel for heavy vehicles is shown in the external view and section herewith. Its special features are the formation of the rim



SHOTWELL'S WHEEL.

integral with the disks constituting the body of the wheel, and the design of the hub, with radial arms to assist in transmitting driving force. Bolts pass through the washer rings and flanges of the hub, holding the disks against turning, and also through the tee branches of the radial arms. The wheel is made by M. S. Shotwell, 1613 N. Front Street, Harrisburg, Pa.

In the latest model of the 24-hp. Léon Bollée car, the three control pedals are so arranged that the clutch can be released without applying the brake and the brake applied without releasing the clutch. To effect this the brake pedal is made in halves.

THE AUTOMOBILE

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SATURDAY, NOVEMBER 14, 1903.

THE CLOSE OF THE SEASON.

As this season draws to an end it is becoming more and more apparent that it will be the last "season" to be recognized broadly as such in automobile affairs. A strong and active demand for immediate deliveries is reported by manufacturers whose product has gained popular approval and by importers of fashionable foreign machines. With winter approaching, this feature of the market in itself indicates that the public recognizes the utility of automobiles as a quality no larger narrowly circumscribed by wind, weather and temperature. All seasons are seasons for automobiling. The lesser use of pleasure vehicles in the winter months can no longer be charged to unfitness of the machines for rough service. Used with discretion they are decidedly better adapted to cope with slush and snow than the horse and carriage combination. The recent Endurance Run did much to crystallize this conviction, and the unprecedented late fall activity in the sales departments of the industry goes far to prove that the public have got ready for the winter car in advance of the manufacturers. Otherwise more closed or closable cars would have made their appearance. They abound in the European countries but to produce them light enough for our roads, and cheap enough for the majority of our motorists, constitutes one of the problems in construction yet to be solved. The effacement of the "season" is a gift conditional, in a measure, upon its suitable solution; although it is true, of course, that the number of open horse-drawn vehicles used in the winter greatly exceeds that of closed vehicles, and that there is no reason to expect a reversal of this order of things where automobiles are concerned. In city circles the electric brougham will largely continue to supply the demand for a stylish and comfortable motor equipage affording protection for its occupants.

A FESTIVAL IN FLORIDA.

One of the events planned for the cold months which will do much for maintaining the continuity of interest in, and use of, automobiles, is the great race meet arranged to take place on the Daytona Beach in Florida. It seems hardly too much to say that this event can be turned into a national and international affair of the first importance, if its management is kept strictly aloof from cliques, coteries, and underground business operations, whatever be the name and pretext under which such may be conducted. As a racing event pure and simple it possesses attractions which only need verification to draw irresistibly for support from European racing men of note and social standing. The tendency toward absolute professionalism in our races has been so pronounced that one annual occasion partaking of a different tone would be hailed with relief and gratification. Something of the order of the Festival Week of Nice should easily be within the possibilities in Florida, provided the qualities of the natural beach track may be fully substantiated in advance to the satisfaction of all. To this end it might be advisable, it seems, to appoint a commission of highly representative men to inspect and report upon the condition of the whole length of the course well in advance of the racing date. Shipments of huge cars from Europe or inland American points to Florida are costly, and only full assurance of favorable conditions will bring the full contingent of competitors and spectators to this promising meet, where the peculiarities of road and track racing seem to be more felicitously blended than in any other accessible portion of the earth.

RIVALRY OF ASSOCIATIONS.

In other branches of automobilism important new developments mark the impending transition from one calendar year to another and those new growths in plans and policies which naturally follow after the high tension of business or pleasure has subsided. Not only the momentous questions involved in the legal fight for and against the Selden patent—affecting deeply the future of automobilism from the public's as well as the industrial standpoint—are drawing toward a degree of acute infiltration, from which relief is bound to spring through the sheer intolerability of the strain. This remarkable outgrowth of modern conditions is entitled to a chapter of separate consideration. But also in other lines are there signs of "things doing." The snarl of clubs, associations and leagues by which little has been accomplished so far is being gradually unraveled. The American Automobile Association has found out through competition that the cord uniting it with the Automobile Club of America should be severed. It has started on a campaign of activity with the end in view of securing mutual support among all American users of motor vehicles for all measures of order and regulation that the existing conditions may require, and in turn to dispense the strength thus derived for the benefit of its members. This of course is the object of all disinterested associations. The accent in all these matters must be placed on the assurance that may be had of the disinterestedness and insight of the leaders, and on these points a highly entertaining rivalry between the A. A. A. and the American Motor League, Mr. Potter's enterprising association, may now be confidently looked for.

URBANA'S PLIGHT.

A story which needs only the right sort of setting to pass inspection as pathetic, is related in the Urbana, O., *Citizen*. According to its Cable (Ohio) correspondent, a Cable citizen, who was lately driving near Urbana, met an automobile, the driver of which, instead of complying at once with the Cable man's energetic signals to stop, drove up within forty feet of the team, claiming that this distance had the sanction of law. The horses were unaccustomed to so close a proximity to the devil wagons, and before the auto had stopped the sensitive animals had fainted away. One of them was not revived for half an hour and, according to its owner, who says he had refused $157 for it, its reputation as a safe driving horse is now ruined.

Only a brute would withhold his sympathy from a man unlucky enough to refuse $175 for his horse before that interesting animal had revealed its talents in the sort described, and we are not brutes. But—er—unless we are much mistaken, Urbana, county seat of Champaign County is the town that won notoriety a couple of years ago by enacting a six-mile speed limit for automobiles from end to end of its borders. Cable is only ten miles from Urbana, and the people of Cable, if one may judge by the tone of the *Citizen's* letter, are cast in much the same mold as their neighbors. If, therefore, the citizens of Cable and Urbana prefer, instead of accustoming their horses to the sight of automobiles, to exclude the latter till they are too numerous to be kept out, who can wonder if they now find themselves with a lot of scared horses and worse scared drivers? However, we will offer one suggestion to those whose animals develop

especial gifts in the way of nerves. There are farmers—lots of them—in New Jersey and on Long Island, whose horses have met the Red Devils and White Ghosts of sporting New Yorkers till they no longer lift an ear when they hear them coming. These farmers would pay good money for horseflesh not yet sophisticated. A hundred and seventy-five dollars? Bah—They can sell a horse for double that to the first motorist he runs away from. Let the Cable man take heart.

The article on racetrack skidding, elsewhere in this issue, presents in a form easily intelligible, a subject deserving of much more general notice than it seems thus far to have had. That the centrifugal force on a turn tends to upset a machine everyone knows, but we recall no previous published analysis showing just how great this tendency is and how it may best be neutralized. Of course, all that shifting the centre of gravity can do is to insure that the inner wheels get their fair share of weight at the turns. It does not affect the lateral force, and this can only be neutralized by correct banking. In this connection it may be worth suggesting that perhaps a connection may be found between the excessive weight on the outer wheels at the turns, and the bursting of tires at these points. It might be expected that the right-hand front tire would give out sooner than the left; while on the rear wheels the greater slip of the left tire might offset the greater weight on the right. Can any one state what his experience has shown?

No small part of the popular demand for good roads has its origin in the extension of rural free delivery. When free delivery is performed by automobiles instead of horses, as it will be before long, that demand will be intensified. It is simply a question of showing visible benefit of the whole public instead of to individuals to make this demand universal.

An enthusiastic admirer of John Muir, the California naturalist and author of "Our National Parks," shudders at the supposition that he might be identical with the John S. Muir whose steam street sprinkler and sweeper was mentioned in our issue of October 30. But what is a naturalist for if he can't invent a street sweeper? In another week we expect a letter from Scotland stating that the John Muir who makes pigskin tires also has nothing to do with the sweeping John S. Muir of Detroit or his syndicate, and gradually, by the process of the elimination of those he is not, THE AUTOMOBILE and its readers will find out who John S. Muir *is*, which will be of some interest, since he promises to revolutionize not only the street cleaning departments in all of our large cities but also the automobile industry.

CLUB CALLS FOR GORDON BENNETT CUP ENTRIES.

Entries for the International Road Race for 1904 have been called for by the Automobile Club of America in a circular letter, as follows, sent out to A. C. A. members:

"Dear Sirs:—The Gordon Bennett Cup Race will be held in Germany in the summer of 1904. As the driver of any American automobile in this race *must be* a member of the Automobile Club of America, this opportunity is given of sending your application to be chosen a member of the American team which will consist of not more than three. This committee will receive entries arriving at the club up to the 15th of December, 1903.

"All entries must be accompanied by a description of the automobile and its state of completion; also a check for $600, which amount will be refunded if you are not chosen, as soon as the team has been definitely selected.

"Further particulars will be given later.

"GEORGE ISHAM SCOTT,

"*Chairman, Racing Committee.*"

New Jersey Hill Climbing Contest.

The New Jersey Automobile and Motor Club, with headquarters in Newark, has arranged to hold its third hill climbing contest on Eagle Rock hill, West Orange, on Thanksgiving Day. There will be six classes as follows: Steam, electricity, gasoline cars weighing less than 1,000 pounds, gasoline cars weighing from 1,000 to 2,000 pounds, gasoline cars weighing from 2,000 to 3,000 pounds, and a free-for-all class.

The Eagle Rock hill is admirably adapted for testing the climbing ability of motor cars. The course is almost a mile long, and the grade varies from 3 1-2 to 16 2-3 per cent. There are two long, straight stretches; two sharp turns and several easy curves. The road is fifty feet wide, and the surface is hard macadam. Eagle Rock is 620 feet above mean sea level, and the view on a clear day embraces the Oranges, Newark, Jersey City, Hoboken, the Jersey Meadows, Newark and New York Bays, and Manhattan and Brooklyn.

COMMON SENSE ORDINANCE IN FORCE IN NEW ORLEANS.

NEW ORLEANS, Nov 9.—The city council of this city recently passed an automobile ordinance, approved by Mayor Capdeville, which is believed, from the standpoint of the motorists, to be one of the most liberal ordinances in the country. The automobilists here have succeeded to some extent in convincing the public that their machines are more easily controlled than the comic papers would have it believe. The number of machines here is rapidly increasing and appropriations for good roads are being made by the parishes throughout the State.

The new ordinance prohibits the operation of any motor vehicle in the streets of the city by any person under sixteen years of age or by any one who has not obtained a permit from the chief of police. It requires that every automobile shall carry "in a conspicuous place a white metal five-inch number on a six-inch patent leather background, to correspond with the number of the aforesaid permit." Speed is limited to eight miles an hour within the section bounded by "Howard Avenue and Esplanade and Claiborne and the river," and to twelve miles outside of said boundaries except that "a speed of twenty miles an hour shall be allowed on suburban roads." The usual rules of the road are required to be observed and in addition the person in charge of an automobile must, in case of danger or when signalled to do so by the driver or rider of a horse or mule, stop immediately and remain stopped until all danger is passed.

Section 3 provides that every automobile shall be equipped with an automobile horn, the bell of which shall measure not less than four inches, or alarm bell or gong of not less than four inches in diameter," to be sounded at street crossings and whenever else deemed advisable by the operator; requires "at least two brakes or sets of brakes, one of which shall be independent of the driving gear and either of which shall be of sufficient power to bring the vehicle, when going at a speed of eight miles, to a full stop within thirty feet; requires that every automobile shall carry a lighted lamp or lamps in a conspicuous position on the front of the vehicle and a lamp on the rear, showing red light on the rear and white light on the figures or numbers whenever in motion or standing still. . . at any time after dusk and before dawn." The same section prohibits the leaving of an automobile standing still without an attendant in any public thoroughfare with any part of the machinery running.

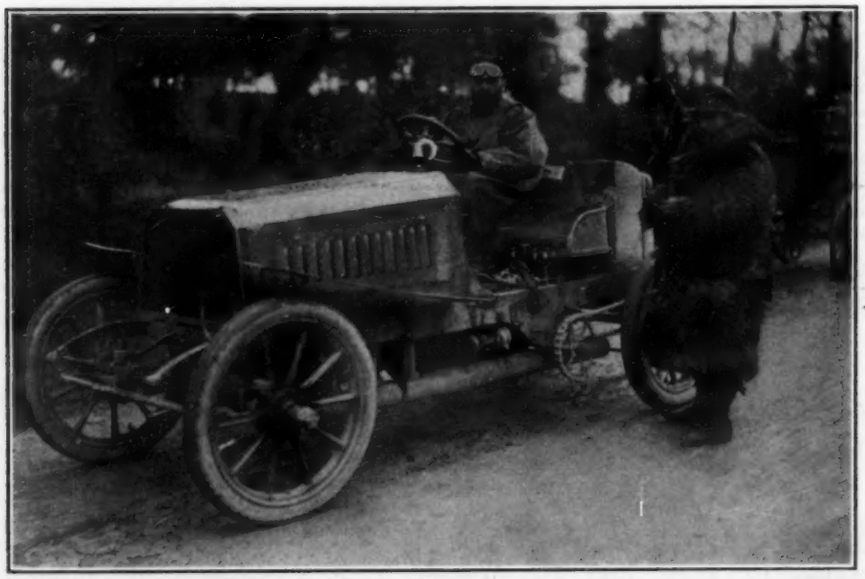
Violation of any of the provisions of the ordinance renders the operator or person in charge liable to a fine not exceeding $25 or imprisonment not exceeding thirty days, or both, at the discretion of the recorder in whose district the violation occurs.

New Officers of the A. C. A.

The annual election of the Automobile Club of America occurs November 16. No opposition having developed to the ticket nominated, the following officers will be chosen for the ensuing year: President, Winthrop E. Scarritt; first vice-president, Henry Rogers Winthrop; second vice-president, Harry Payne Whitney; third vice-president, William K. Vanderbilt, Jr.; treasurer, Jefferson Seligman; three governors to serve for three years, Dave H. Morris, Sidney Dillon Ripley, Albert R. Shattuck; two governors to serve one year, Harlan W. Whipple, Arthur Iselin.

EUROPEAN ROAD RACING STARS EXPECTED AT FLORIDA

Indications point to a well attended and successful automobile tournament on the beach between Ormond and Daytona, Florida, in January. The beach is in excellent condition, and will remain so, while in addition to the several new American racing cars that are expected to compete, there will be a number of foreign machines.



RENE DE KNYFF WHO IS EXPECTED AT DAYTONA BEACH RACES.

C. S. Rolls, who holds the world's straightaway kilometer record, made recently in a huge Mors car in the Duke of Portland's park, at Welbeck, England, has been invited to attend the tournament, and the promoters say he will be there. Chevalier René de Knyff, who was second in the last Gordon-Bennett race, will, it is thought, also drive a car in the Florida races, as he will attend the New York automobile show just preceding the races. An effort is being made to induce Jenatzy, winner of the Gordon-Bennett trophy, to attend also.

F. A. La Roche is importing a huge Darracq racer and proposes to figure in the prize winning, while Barney Oldfield, Tom Cooper, Harry Cunningham, Eddie MacDuffie, John Law, George Cannon and other prominent drivers will, no doubt, be there.

The Florida East Coast Automobile Association is already preparing for the tournament. The timing apparatus will be installed and tested long before the date for the tournament arrives. Twenty miles of copper wire has been purchased, and poles are being erected to carry it in the same line as the mile posts which were erected along the beach last winter. Telephone wires will also be strung on these poles.

The coquina shell, a small shell of the cockle variety, acts as a binder for the sand of the beach between Ormond and Daytona, making the beach quite different from any other beach in that it is almost as hard as cement. As the beach is perfectly smooth and level, the action of the tide keeps it in excellent condition in midwinter, when the air is not dry and hot enough between tides to take out all the moisture and soften the surface.

Alfred Reeves, formerly secretary of the Empire City track, who has been enjoying a rest at Daytona recently, states that the straightaway mile can easily be driven in less than fifty seconds on the beach. Reeves would like to see a 100-mile race on this course, and believes that such a race could be held with great success. As the beach is federal property there can be no opposition to race meets, while the nature of the course makes it unusually well adapted to automobile racing, both from the standpoint of the contestants and the spectators. There are no fences or trees to crash into, no ditches to overturn in, and no bridges to go through. There is no traffic, and there is no reason for persons or domestic animals crossing the course, as the ocean is on one side and the sand dunes on the other. The latter afford a natural safe grandstand, miles in extent. The races will start on January 27, four days after the closing of the New York show. A. R. Pardington, chairman of the Automobile Association racing board, will referee the tournament.

Sues for Injuries at Cleveland Meet.

C. A. Turner has brought suit against the Cleveland Driving Park Company, the Cleveland Automobile Club and the Baker Motor Vehicle Company, Cleveland, O., for $5,000 damages. Turner sustained a broken shoulder in the accident to the Baker "Torpedo Kid" racing machine when it smashed through the fence at the races in September, and claims that the accident was due to the negligence of the owners of the track, the owners of the machine, and the club which held the races.

COAST RECORDS SURE TO FALL AT LOS ANGELES MEET NOVEMBER 20.

Los Angeles, Nov. 5.—Barney Oldfield will make his initial appearance in Los Angeles Saturday, November 20, at Agricultural Park, in a series of automobile races to be given by the Automobile Club of Southern California.

Although nothing has been said about it, the club has been working quietly but persistently through its racing committee and arrangements are already well advanced, entry blanks having already been taken off the press. While Oldfield is, of course, the feature card, all the local speed merchants, such as Frank A. Garbutt and his White, rigged as a racer, a new 40-horsepower Mercedes and a Panhard will probably be contestants. Races will be arranged with a view to accommodating the local talent and such as can be brought in from the outside, as the racing features of the sport hereabouts are comparatively neglected, the automobile interest of Southern California thus far having been confined mostly to touring.

The track at Agricultural Park is conceded to be much faster for the work than the course at Ingleside, where Oldfield will appear first on the coast. In the North a special offer has been made by the California Association, which is conducting the races, of $250 for any mile that is done under a minute and an additional prize of the same amount for a new world's record —a mile in less than :55 4-5 seconds. Oldfield now holds that honor and he will bring both of his machines—the Baby Bullet for classes under 1,800 pounds, and the Bullet No. 2 for the speed trials against the world's record.

Nothing else than the proposed meeting is being talked of in auto circles at present. A well-defined belief exists that Oldfield will be able to come very close to his record time here, though it is hardly fair to expect a new record, as the track at Agricultural Park, though conceded to be one of the fastest in the United States for horses, is not as wide as the Eastern courses, thereby necessitating a reduction of speed at the turns greater than is compatible with mile-a-minute scorching. Oldfield will probably reach here about a week in advance of the speed trials and will become accustomed to the going before essaying any sensations.

A good list of endurance and speed tests for the amateur operators will be arranged, and the prize list will be considerable. An excellent entry is expected; and the auto owners certainly should do their share toward bringing the sport before the public in the right light.

The program of the races is as follows:

First day, Friday, Nov. 20.—Five miles for gasoline machines only, weight 1,000 to 1,500 pounds, limited to stock cars rated at 12 horsepower and less; five miles for gasoline machines, 1,200 pounds and under, limited to stock cars; five miles, open to stock cars of 20 horsepower and under; five miles, for California owners only, for $250 cup; five miles, 1,800 pounds and under; Australian pursuit race, in heats, limited to stock cars of 20 horsepower and less; ten miles, free for all, for $200 prize.

Second day, Saturday, Nov. 21.—Five miles open, 6 1-2 horsepower and less: five miles for runabouts, owned by members of the Automobile Club of Southern California and driven by members; Australian pursuit race, open to California owners only, cars of any power; five miles, for gasoline cars only, 1,500 pounds and less, limited to stock cars; five miles, open, for touring cars of any power and weight; five miles, for cars weighing 1,800 pounds and less; five miles, open only to Winton touring cars belonging to members of the A. C. of S. C., stripping limited to tonneau, mudguards and lamps and no change of gears allowed; ten miles, free for all, for $200 prize. In nearly all the races there are no restrictions regarding stripping and gears.

RECORD HILL CLIMBING WITH HEAVY CAR IN BOSTON BY W. E. ELDRIDGE.

Boston, Nov. 8.—W. E. Eldridge, resident manager of the Pope Manufacturing Company, last week, Tuesday, set a new mark for the local automobilists by climbing the Commonwealth Avenue hill in his large four-cylinder, 28-horsepower Toledo stock car in 31 seconds with a flying start, and in 37 2-5 seconds from a standing start. This hill is a fifth of a mile long and has a grade of 13 per cent. It was the hill used in the trials conducted by the Massachusetts Automobile Club on Patriot's Day. In the trials then the record for gasoline cars was 43 1-5 seconds, made by F. E. Randall in a Stevens-Duryea 5-horsepower car under 2,000 pounds. The record for a gasoline car over 2,000 pounds was made by J. L. Snow in a Peerless of 16 horsepower, and was 43 2-5 seconds. Mr. Snow also made the record for a gasoline car with tonneau, his Peerless climbing the hill in 51 4-5 seconds. Another Peerless made equal time.

Except that the hill during Tuesday's trials was much rougher than during the club trials in the spring, the conditions were the same. The same members of the Chronograph Club who timed the club trials timed Mr. Eldridge, and the start and finish were at the same points. In his first attempt at the hill Mr. Eldridge had three passengers besides himself, and made a record of 39 3-5 seconds. His second trial was with one passenger besides himself, and he clipped his former time to 37 2-5 seconds. On the third trial Mr. Eldridge drove at the hill alone from a flying start, the time being caught at the start and at the finish. His trip was made nearly all the way on the high speed and he reached the top 31 seconds after he passed the starting line. This is almost down to the record of motorcycles. The record for this hill is 26 3-5 seconds made by F. Durbin in a 5 1-2-horsepower Stanley steam carriage.

Fast Racing at San Francisco.

A mile in 56 seconds flat was made by Barney Oldfield in the Bullet II, at Ingleside track, San Francisco, last Saturday. It was the second day of the two-days' racing tournament held by the Automobile Club of California, and the remarkable performance came within one-fifth of a second of equalling the world's mile record of 55 4-5 made by Oldfield at the Empire track near New York. The performance is even more wonderful, it is reported, because the Ingleside track was sandy and soft.

In a ten-mile exhibition Oldfield covered the distance in 9:51 1-5, from standing start, as against his record of 9:34 1-2, made with flying start at Overland Park, Denver, October 29. The seventeen seconds' difference might easily have been consumed in getting under full headway last Saturday.

Walter Grothe, of California, in a White steamer equipped for racing, defeated Oldfield, driving the Baby Bullet, in the five-mile open race, winning in 6:04 2-5. The best mile was negotiated in 1:09 4-5 Grothe also won another race during the meeting, which was attended by a large crowd. The weather was perfect.

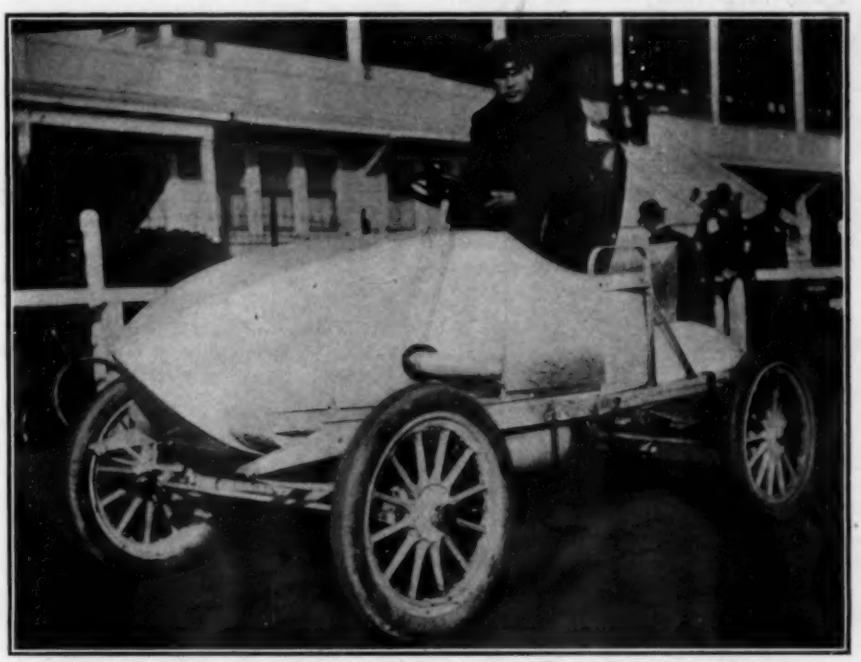
Walter Garbutt, the coast amateur champion, sustained his reputation in the tournament as a skilful driver.

The free-for-all for California owners was won with a Toledo four-cylinder touring car in competition with 40-horsepower cars, covering the five miles in 6:25. The race for machines in the 24-horsepower class was also won in the same Toledo car.

Notes on Racing Matters.

A. R. Pardington, chairman of the A. A. A. Racing Board, when requested to give a decision regarding the proper disposition of trophies won by cars in automobile races, said: "The trophies belong to the man who enters the car and must be given to him. The driver is employed to operate the car and his compensation may be anything mutually decided upon, but the trophies go to the owner of the car every time."

In some instances this season the drivers have demanded the cups and trophies after winning them, notable among these being Jules Sincholle, the Frenchman who naturally wished to return home with the trophies he had won. The importer who employed Sincholle wanted to display the cups won with his machines this year at the shows. One race meet promoter, recognizing this trouble, decided lately to give the drivers medals commemorative of the race and so the matter was settled amicably. However, some rule should be included in the A. A. A. racing rules that will end all doubt in the matter henceforth. On the horse track the owner always collects the money and pays the jockey as a matter of course. On the cycle track the pace follower is entered for a contest



WALTER GROTHE IN WHITE MACHINE EQUIPPED FOR RACING.

by his manager, who alone is recognized by the race promoter. On the automobile track all trophies should likewise be given to the owner of the car or manager of the operator, who can then settle with his driver as arranged in advance.

Albert Champion is progressing nicely. The daring Frenchman is still at the Kings County Hospital, over in Brooklyn, but will be moved by his employer and friend, Colonel Pardee, to a New York hospital within two weeks. Colonel Pardee is anxious to have Champion nearer at hand where he may have every attention. Mrs. Champion is with her husband constantly. At present Champion has his leg heavily weighted to prevent shortening. The chances of blood poisoning are practically past now. Champion attributes the accident to the rutty condition of the track. The Gray Wolf is to-day as good as ever and might have been placed in shape within an hour at the most after the accident, had that been necessary.

The Berkshire Automobile Club held a race meet at Pleasure Park, North Adams, Mass., on Saturday, October 24.

As automobile racing spreads and the number of extremely large cars increases, it may be necessary although expensive business to clear the entire infields of the various tracks by the temporary removal of the fences. Had this been done, it is quite probable that the accident to Albert Champion would have turned out a laughable rather than a serious accident. Earl Kiser's accident at Dayton would likewise have amounted to little or nothing and the "Torpedo Kid," at Cleveland, would have done no damage. The racing will be far more spectacular, too, where the complete track is in plain view of the stands.

Major Taylor, the colored whirlwind of the cycle track, has returned to America after his trip around the world supplied with a motor car, a motorcycle and two dogs. Taylor is anxious to enter the automobile racing field and may do so next season.

"No one realizes just how many great racing machines are in course of construction in this country at the present time," said A. J. Picard some days ago. "Why, at least a dozen factories are at work on machines which will be record breakers next season. Much work is being done behind locked doors and the secrecy which is being maintained causes one to think that some surprises are in store for every one when the season opens. Importers, too, are preparing to bring to this country some of the fastest machines of Europe and some of the fastest drivers as well, and the coming year will see a boom in automobile racing such as has not been dreamed of by the most sanguine adherents of the game. Machines will be faster than the tracks and the skill of the drivers will win the day. It will be dangerous in the extreme to employ unskilled men, and hard consistent training will have to be done early in the year by the men selected to run the machines."

Making record miles with a clear track and making the same sort of miles in a race are quite a different matter, according to drivers of fast racing cars. With the track clear the driver's mind is at rest, and he may let his machine out and study his going at all times without placing his mind on other matters. But with competitors on the track, his mind is constantly at work figuring upon the probable position of a competitor, upon the chances of an accident ahead of him, and that little worry takes his mind from the machine itself and loses valuable time.

"The mile in one minute gives me no sensation," said Barney Oldfield, "and even miles at a :57 gait fail to give me that sensation which I crave. It must be faster, faster, all the time, and I expect to reach the height of my ambitions when I go that mile in :45. What is the sensation? I do not know that I can define what I mean except that it is the exhilaration which comes from fast traveling, the feeling which comes to any one who is not afraid to travel, the feeling that probably comes to him who flies for the first time. Ordinary speed does not give me any concern now. The mile around the minute at one time was wonderful to me, but now I pay no attention to such speed at all. I can almost tell as I travel how fast I am going. Under the minute I recognize, and as the speed increases I realize that it is faster, but just how much faster to the fifth of a second I do not know. My fastest mile, :55 4-5, gave me a sensation, and I am now anxious to go faster than that and will do :52 some day. I feel quite certain that at Denver, had darkness not intervened, I should have done :52 for the mile in a separate trial."

Features of 180-Horsepower Racer.

The 180-horsepower Darracq racing car that has been ordered from Paris by the American Darracq Automobile Company will be an innovation in motor cars in other respects than its enormous power. According to F. A. La Roche, who will probably drive the machine himself, it will have two four-cylinder motors, each of 90 horsepower, one mounted over the front axle and the other over the rear axle. They will be connected in such a way that they can be run simultaneously, driving one main driving shaft, or so that one of the engines can be operated to drive the car and the other left dead. Bevel driving gears will be used and will operate noiselessly. There will be only two inches clearance from the ground, and the supports of the body will be in the form of skids or runners, so that in case of a tire bursting or a wheel breaking, the car will remain upright. The body will be boat-shaped and so roomy that the driver can get his entire body and head down inside of it if disaster threatens. The interior of the body surrounding the driver's seat will be thickly upholstered to protect the operator against bruises and possible breakage of bones. Mr. La Roche, who hopes to bring the new wonder back with him to the New York show, believes it will be possible to do the mile in 45 seconds with it on a circular track.

Injurious Rumors Denied.

Rumors to the effect that the Decauville Company, of Paris, had discontinued the manufacture of automobiles having been persistently circulated, E. T. Birdsell, manager of the Standard Automobile Company of New York, sole agent in the United States for these cars, who has been caused much annoyance by the report, states that the rumors are absolutely without foundation. The origin of the report he thinks was probably due to the fact that one of the small subsidiary companies of the Société Decauville had been liquidated and absorbed by the present concern.

New York Rambler Agency Placed.

Homan & Schulz, 134 West 38th Street, New York, have secured the New York agency for Rambler automobiles. When asked for a verification of the report, a representative of the firm said: "Yes, it is true. We shall handle the Rambler in New York. What we shall do about the Locomobile and the Northern I cannot say, but according to the present rules of the A. L. A. M. we cannot handle a licensed and unlicensed vehicle. This may all be altered in the future; we will not cross a bridge until we get to it."

'Frisco to Try Postal Autos.

The San Francisco postal authorities will ask for bids to furnish automobiles for the use of the postal department. Postal Inspector R. R. Munro has said: "We figure that four or five automobiles will be able to do the work of collecting mail in San Francisco that now requires seventeen horses and wagons. If the experimental work shows that we can use automobiles for collecting the mail it is the intention to make the change, providing, of course, that the bids for the use of the automobiles do not exceed the amount now allowed for the hire of horses and wagons."

"There is any number of automobile factories in Michigan, but the one in Pontiac actually turned out an automobile this week," writes the Grand Rapids *Press* with sarcasm. But after all, many automobile manufacturers could have saved much money by designing before producing.

News Notes and Trade Items.

The city clerk of Grand Rapids, Mich., has issued licenses to 105 automobilists.

An automobile parade was one of the attractions planned for the army post dedicatory celebrations to be held in Des Moines, Iowa, on the last three days of this week.

William E. Metzger, of Detroit, will handle the Packard motors cars in his city, having accepted the local agency.

The Cincinnati Automobile Company is moving from its old quarters on Race Street, Cincinnati, to a fine, large building at 219-221 East 5th Street, where there will be ample room for the increase of business, which has been cramped in the old quarters during most of the season.

Harold Jeffery, of the firm of Thomas B. Jeffery & Co., Kenosha, Wis., manufacturers of Rambler automobiles, is calling on the firm's New England agents.

R. R. Ross, who has been connected with H. B. Shattuck & Sons, of Boston, who recently failed, has taken the New England agency for the Packard cars. Mr. Ross is at present in Detroit, but will later return to Boston and open an office and garage.

The Wisconsin & Michigan Railroad Company, it is said, will establish a service of passenger automobiles, each with a capacity of fifteen persons, to run regularly to Quinnesec to make connection with the regular trains from the surrounding locality.

The motors used on the Buffalo electric touring car in which F. A. Babcock, president and general manager of the Buffalo Electric Carriage Company, and party, recently drove from Boston to New York as a test trip, were built by the Gilmore Motor Company of South Boston, Mass. The run was also used as a test for these motors, and all Buffalo electrics will be equipped with them next season.

The closing down of the plant of the Racine Boat Company, Racine, Wis., for its removal to Muskegon, Mich., was marked by the launching of the large twin-screw steel yacht, *Roxana*, built for J. W. Gates, of Chicago, and the last boat built by the company in Racine. The *Roxana* was launched at 5.30 o'clock, Saturday afternoon, October 17.

A circular received from the Croftan Storage Battery Company, Toronto, Can., describes the automobile storage battery made by that company under the "Madigin" patents. It is a medium weight battery with forward plates, the structure of the grid appearing to be the special feature.

The "Union" spring cushion seat for motor cars is manufactured exclusively by the well-known seat makers, E. Kelley & Co., Worcester, Mass.

The Nelson Gas Engine and Automobile Company, Harlan, Iowa, has put in its own electric lighting plant.

Fred P. Brand is representing the Locomobile Company of America in Cuba.

The St. Louis Automobile & Truck Company, to deal generally in automobiles and automobile supplies, has been incorporated in St. Louis, Mo., with $20,000 capital, half of which is paid. E. Ruebel, C. J. Briner and Fred C. Schwedtman are the incorporators.

The Decauville agency for Boston and vicinity has been placed in the hands of H. L. Radford, 43 Columbus Avenue, Boston salesrooms.

R. L. Beckwith of Hartford, Conn., in his Knox passed through Fitchburg last week *en route* to Ohio. He has covered more than 6,000 miles this season with very few accidents.

The George P. Moore Company of San Francisco has taken the Pacific Coast agency for the Monogram oils and greases manufactured by the Columbia Lubricants Company of New York, especially for use on automobiles.

The Baldner Automobile Co. has shipped an automobile to San Diego, California, making the sixth car taken by purchasers in that city within the past few months. The owners of Baldner cars in San Diego have formed a club. The machines are reported to be giving the best of satisfaction.

Gray & Davis, Amesbury, Mass., state that they have secured the contract for lamp equipment on the 1904 Winton output, "G & D" oil and gas lamps being used exclusively.

Fred C. Graves of Boston, Mass., has been given the exclusive agency for the Autocar in Vermont, New Hampshire and Massachusetts, for 1904. Salesrooms will be opened as soon as suitable quarters can be secured in Boston.

A. W. Toppan, 9 Haverhill Street, Boston, Mass., has taken the New England agency for the Overland gasoline runabouts manufactured by the Standard Wheel Co., Terre Haute, Ind. Mr. Toppan has an old established gasoline launch and dory business, and has handled marine and stationary gas and gasoline engines for eight years.

Frank Sanford, a chauffeur who was arrested and charged with driving an automobile at fifteen miles an hour in Central Park, New York, has brought up the contention that, under the Bailey law, he has a right to drive at that rate of speed in the Park, as there are no houses less than one hundred feet apart in the Park. Magistrate Zeller, of the Harlem Police Court, wanted a higher court to decide the case and held the offender for trial, desiring to make it a test case.

The Imperial Wheel Company, Flint, Mich., has filed a notice with the Secretary of State of the increase of its capital stock from $300,000 to $500,000.

About 200 persons attended the first lecture on the antomobile at the Y. M. C. A. night school, in Boston, on Tuesday evening of this week. The course is to be divided into two main divisions—gasoline and steam and electricity. The first drafting lesson was given immediately after the lecture, and the first laboratory lesson was given on Friday evening in the Park Square station.

The Knox Automobile Company has just completed a four-story brick building, 100 by 50 feet, which will be devoted exclusively to work on the bodies. The first floor will contain the forge shop, the second and third, the plant shops, and on the fourth, the upholstering and varnishing will be done. The main factory buildings were taken over from a wood-working concern, all of whose tools and equipment passed into the Knox company's hands, giving the latter an exceptionally complete outfit for the body-making department of their work.

Tod Sloan, one time the most successful jockey in the world, commanding, it is said, an annual income of $80,000, is now in the employ of a Paris automobile house as a chauffeur. Since Sloan was ruled off the English tracks his financial downfall has been rapid. Though the little fellow spent his money lavishly in the days of his success, it is not to his discredit that his monthly salary does not now amount to more than his daily expenses two years ago.

The tax rolls show that there are about 120 automobiles owned in Minnesota, outside of the three cities of Minneapolis, St. Paul and Duluth.

The Hoffman Automobile & Mfg. Co., will, in the future, be known as the Royal Motor Car Company. This change has been made on account of the recent retirement of L. E. Hoffman from the management of the company, and because the

cars produced by the company will hereafter be known as the Royal Tourist. A two-cylinder machine with the engine placed vertically in front has been decided upon for the coming season and the first model is now being tried out. As soon as the first lot of these cars is under way, it is the intention to bring out also a large car with a four-cylinder upright motor.

Chicago capitalists are promoting an electric bus line to oppose the local cab combine in Denver. Baggage trucks will also be operated.

In a car given as a wedding present by the Czar, the Prince and Princess Andrew of Greece, who were married October 7, are spending their honeymoon in a tour to pass through Austria, Montenegro and Macedonia and then to Athens. They are followed by an automobile carrying their servants and baggage.

James A. Hands, 523 Fifth Avenue, New York; has resigned the position of secretary and general manager of the Pioneer Automobile & Campus Motor Co.

"November sales have been phenomenal," said R. M. Owen, of the Oldsmobile Company of New York last Tuesday. "We have already disposed of a carload of Oldsmobiles since the first of the month, and have taken orders for three machines for spring delivery."

R. T. Van Valkenburg, of La Porte, Ind., who has been granted a patent covering the construction of an automobile railway and its details, states that sufficient capital to build and equip a trial line from Chicago to South Bend is ready, and if successful the road will be immediately extended to Cleveland under the same management, while other lines will be established. The plan is to operate passenger automobiles and collect tolls from private machines. The road, which is to be of concrete, will be for the use of all kinds of automobiles and the plan admits of high speed without danger of accident by collision.

Louis S. Caswell, for several years connected with the sales department of the Electric Vehicle Company, has resigned and accepted a position with Hayden Eames, manufacturers' agent for automobile parts, accessories and supplies, with headquarters in the American Trust Building, Cleveland, Ohio.

The Parish & Bingham Company, of Cleveland, are now making pressed steel frames for automobiles.

Graham E. Babcock of San Diego, Cal., has placed an order with the Pioneer Automobile Company of San Francisco for a Winton touring car of the 1904 model, and will receive the first machine of this type that reaches the Pacific Coast. F. A. Hyde, President of the Automobile Club of California, and A. Aiken, a mining man who has interests in Mexico, have placed similar orders with the same company.

Dr. Fred Webner, Dr. Maurice Asher and Allen N. Terbell, of Newark, have opened a private garage at 334 Halsey Street where their cars will be stored and taken care of on the co-operative plan.

W. Holt Apgar, receiver for the Munger Auto Tire Company, Trenton, N. J., filed his account in the Chancery Court in Trenton on October 28. The claims properly filed with the receiver amount to $10,528.33, and $2,918.96 have come to the receiver's hands.

The Decauville racing car with which Henri Page has been touring this country, has been purchased by Burtt & Company, of Newark. The car took part in the Paris-Madrid race early last summer and still bears on the radiator the number 207 under which it was entered in that memorable contest.

The Premier Motor Mfg. Co. of Indianapolis has secured much larger manufacturing quarters and increased facilities in the old Munger bicycle plant and the adjacent building, both of which it will occupy.

The Auto-Vehicle Company, 79 Orange Street, Newark, N. J., of which George Paddock is manager, is looking for larger quarters for next season. The company handles the Oldsmobile, and so far has sold 300 machines, 200 of which were put out during 1903. At present the Auto-Vehicle Company has the agency for Morris and Essex counties, but by January 1 Mr. Paddock expects his company to represent the Oldsmobile for the entire State.

A very practical and at the same time economical way of testing the quality of an automobile has been adopted by the Motor Car Company of New Jersey, whose members drive each of the Autocars it offers for sale from the factory at Ardmore, near Philadelphia, to Newark. By doing this they save freight and time and test the car thoroughly.

The automobile has been playing an important part in church entertainments and charity suppers in Newark the past season. Many people welcome a ride in one as a novelty, and are willing to pay twenty-five or fifty cents for the experience, especially if the money goes to charity. At least two recent church entertainments owe much of their success to the automobile feature. Owners of cars donated the use of them and took patrons for a ride of two or three miles for a quarter or half-dollar, and had no difficulty in keeping their machines in commission the evening.

The Warner Differential Gear Company of Muncie, Ind., is enlarging its plant about four fold by the erection of a new factory building and the addition of a new story on the old building to raise it to the height of the new one. A number of machine tools of the latest types have already been delivered in the new building and will be set in position within a fortnight.

About fifty Newark physicians have sold their horses and carriages and are using automobiles exclusively in visiting their patients. The horseless carriages are giving perfect satisfaction, being as reliable in wet weather as in dry. Dr. Charles D. Bennett holds the distinction of being the first Newark doctor to purchase an automobile for business purposes. At the time he was urged not to adopt the automobile, but he ignored the advice and has never regretted it.

The Central Automobile Company, a new concern in Newark, N. J., has bought out the business formerly conducted at 224 and 226 Halsey Street, by the New Jersey Automobile Company, and has opened an establishment for the storage, renting, exchanging and repairing of machines. The livery feature is an innovation in Newark. The Central Automobile Company will let out automobiles with or without chauffeurs. The establishment which the new company has taken over was built expressly for an automobile station and is thoroughly equipped.

Duryea's British Success.

Duryea cars, as made at Coventry, England, carried off the honors of recent speed trials in Ireland and at Southport, England, in competition with racing cars of much higher power. In consequence of this success the English Duryea Company is now enjoying a boom of orders and has acquired ground for new works. The design and construction of the cars are the same as in the cars manufactured by Charles E. Duryea at Reading, Pa. Henry Sturmey, formerly editor of *The Cyclist* and *The Autocar* is the British manager.

Clement Loses Own Name.

Clément cars will hereafter be known in England as "Talbot" cars and will be manufactured there by Clément-Talbot, Ltd., in new works now in course of erection near London. The French Clément cars will be called "Bayard;" both changes being due to Mr. Clément's withdrawal from Clément-Gladiator, Ltd., who retain the exclusive rights to the use of his name. Mr. Clément, who is largely interested financially in three or four of the most prominent French automobile manufactories, also has a plant in Hartford, Conn., for the production of motor bicycles, and is probably the strongest one-man factor in the automobile industry of the world.

An American Motor League consulate for the Oranges was organized last Tuesday evening at a largely attended meeting of motorists held at the home of Angus Sinclair in East Orange. President Potter, who was present, told of the objects of the organization and the progress made. Committees were appointed to report at the next meeting upon the election of officers and a constitution and by-laws for the consulate.

Directory of American Automobile Clubs.

WITH NAMES AND ADDRESSES OF SECRETARIES.

ADDITIONAL CLUBS AND NAMES OF OFFICERS ARE REQUESTED FOR REVISED DIRECTORY TO BE PUBLISHED SOON.

AMERICAN AUTOMOBILE ASSOCIATION—S. M. Butler, 753 Fifth Avenue, New York City.
AUTOMOBILE CLUB OF AMERICA—S. M. Butler, 753 Fifth Avenue, New York City.
AMERICAN MOTOR LEAGUE—Robert L. Stillson, 150 Nassau Street, New York City.
AMERICAN POWER BOAT ASSOCIATION—J. H. McIntosh, 32 Broadway, New York City.
NATIONAL ASSOCIATION OF AUTOMOBILE MANUFACTURERS—A. B. Tucker, 7 West 42d Street, New York City.
N. Y. STATE ASSN. OF A. C.—Chairman, Hurlburt W. Smith, Syracuse, N. Y.
ALBANY, A. C.—Chas. M. Page, 99 Central Avenue, Albany, N. Y.
A. C. OF ALLENTOWN—S. A. Weishampel, Allentown, Pa
A. C. OF AUBURN—Dr. W. G. Whitman, Auburn, N. Y.
A. C. OF AURORA—S. W. Thorne, Aurora, Ill.
BERKSHIRE A. C.—L. A. Merchant, 86 North Street, Pittsfield, Mass.
BETHLEHEM A. C.—Wm. E. Martin, Bethlehem, Pa.
BLOOMSBURG A. C.—C. W. Funston, Bloomsburg, Pa.
BLOOMINGTON (Ill.) A. C.—Henry Thorpe.
A. C. of BRIDGEPORT—F. W. Bolande, State Street, Bridgeport, Conn.
BROCKTON A. C.—W. H. Marble.
BRONX A. C.—F. M. Jeffries, Bronx Borough, New York City.
A. C. OF BUFFALO—F. J. Wagner, Buffalo, N. Y.
A. C. OF CALIFORNIA—E. P. Brinegar, 415 Montgomery Street, San Francisco, Cal.
CEDAR RAPIDS A. C.—Geo. Henderson, Cedar Rapids, Ia.
CHICAGO A. C.—Walter H. Chamberlin, 243 Michigan Avenue, Chicago.
A. C. OF CINCINNATI—L. S. Colter, 30 W. Seventh Street, Cincinnati, O.
CLEVELAND A. C.—Geo. Collister, Superior Street, Cleveland, O.
COLORADO A. C.—W. H. Bergtold, 624 Fourteenth Street, Denver, Col.
COLUMBIA UNIVERSITY A. C.—R. C. Gaige, Col. University, New York City.
COLUMBUS A. C.—Perry Okey, Columbus, O.
COUNCIL BLUFFS A. C.—Tom S. Farnsworth, Council Bluffs, Ia.
CUTLER A. C.—Walter D. Pinkus, 20 East 50th Street, New York City.
DAYTON A. C.—W. Webster Ensey, Dayton, Ohio.
A. C. OF DETROIT—W. S. Burtenshaw, Detroit, Mich.
GRAND RAPIDS A. C.—L. W. Welch, Grand Rapids, Mich.
GRANITE STATE A. C.—Albert L. Clough, Manchester, N. H.
HARTFORD A. C.—Walter G. Cowles, Box 426, Hartford, Conn.
HERKIMER A. C.—W. I. Taber, Herkimer, N. Y.
A. C. OF HUDSON COUNTY—Frank Eveland, 2565 Boulevard, Jersey City, N. J.
A. C. OF ILLINOIS—M. Scott, 405 Monadnock Bldg., Chicago, Ill.
A. C. OF INDIANA—J. A. McKim, Indianapolis, Ind.
A. C. OF KANSAS CITY—M. A. Albertson, Kansas City, Mo.
LONG ISLAND A. C.—Read Halliday, Lincoln Club, Long Island, N. Y.
LOUISVILLE A. C.—G. W. Hubley, Louisville, Ky.
MACON AUTO ASSN.—E. W. Burke, Macon, Ga.
A. C. OF MAINE—Howard Winslow, Portland, Me.
A. C. MARLBOROUGH—J. F. J. Otterson, Marlborough, Mass.
A. C. OF MARYLAND—C. Warner Stork, Altamount Hotel, Baltimore, Md.
MASSACHUSETTS A. C.—F. L. D. Rust, 761 Boylston Street, Boston, Mass.
MILWAUKEE A. C.—W. J. Merkel, 1095 Twenty-sixth Avenue, Milwaukee, Wis.
A. C. OF MINNEAPOLIS—S. D. Andrews, Minneapolis, Minn.
MONMOUTH A. C.—Geo. W. Pittinger, Asbury Park, N. J.
NATIONAL CAPITAL A. C.—Erskine M. Sunderland, 819 Fourteenth Street, Washington, D. C.
A. C. OF NEW JERSEY—W. J. Stewart, 8 Central Avenue, Newark, N. J.
NEW JERSEY AUTOMOBILE AND MOTOR CLUB—E. E. Sargent.
A. C. OF NEW ORLEANS—Sam Stone, Jr., Progressive Union, New Orleans, La.
A. C. OF NORFOLK—J. Roy Collins, Norfolk, Va.
NORTH JERSEY A. C.—Ed. T. Bell, Jr., Paterson, N. J.
NORTH SHORE A. C.—Quincy A. Shaw, Jr., Pride's Crossing, Mass.
A. C. OF OGDEN—John A. Smith, Ogden, Utah.
OHIO VALLEY A. C.—R. R. Mahlke, Wheeling, W. Va.
PASADENA AUTOMOBILE CLUB—Robt. H. Gaylord, Pasadena, Cal.
A. C. OF PHILADELPHIA—Frank C. Lewin, 1404 S. Penn Square, Philadelphia, Pa.
PITTSBURG A. C.—Reuben Miller, Pittsburg, Pa.
PRINCETON A. C.—S. H. Bird, Princeton, N. J.
RHODE ISLAND A. C.—H. H. Rice, Crown Hotel, Providence, R. I.
A. C. OF ROCHESTER—F. E. Mason, Rochester, N. Y.
A. C. OF SACRAMENTO—H. G. Hay, Sacramento, Cal.
A. C. OF SAN JOSE—B. D. Merchant, San Jose, Cal.
SCRANTON A. C.—A. P. Bedford, Scranton, Pa.
A. C. OF SPRINGFIELD—B. J. Griffin, Springfield, Mass.
A. C. OF ST. LOUIS—E. H. Steadman, St. Louis, Mo.
ST. PAUL A. C.—A. W. Tarrar, St. Paul, Minn.
A. C. OF SYRACUSE—F. H. Elliott, 517 E. Water Street, Syracuse, N. Y.
TOLEDO AUTOMOBILE CLUB—M. J. Foutz, Toledo, Ohio.
TOPEKA A. C.—R. D. Montgomery, Topeka, Kan.
A. C. OF TRENTON—Edward S. Wood, Trenton, N. J.
A. C. OF UTICA—Harry M. Mundy, Utica, N. Y.
TROY A. C.—J. S. Thiell, Troy, N. Y.
A. C. OF VERMONT—W. D. Woolson, Springfield, Vt.
WORCESTER A. C.—H. E. Shiland, Worcester, Mass.

INFORMATION FOR BUYERS.

HEBB AUTOMOBILE SPRINGS.—George A. Hebb, 70 William Street, Newark, N. J., with eight years' experience in spring-making, has opened a modern spring

HEBB PRODUCTION.

factory and is turning out all kinds of compression, extension and flat springs. Special attention is given to all kinds of springs for automobiles, and to experimental work where springs are required.

MARINE ENGINES.—The Globe Iron Works Company, Minneapolis, Minn., issues a handsome catalogue of its gasoline marine engines in which the general construction of the various models is carefully described. Handsome illustrations show the different engines.

NEW FRONT AXLE CONSTRUCTION.—The Billings & Spencer Co., Hartford, Conn., in answer to the demand for drop forgings for front axle ends and steering knuckles of the French, or Lemoine design, has brought out a new front axle construction and is prepared to furnish parts for 1 1-2-inch axles. These steering knuckles and axle ends are designed for touring cars of from 12 to 30 horsepower, are made from the best of material and can be machined in various ways, as the builder may desire. These forgings can be furnished from stock, insuring prompt shipment.

DOCTOR'S RIG.—The Thomas gasoline car Model 19, for physicians, is gaining popularity, the doctors in many sections finding a more powerful car than a runabout desirable. The car is the same as the regular model 18, made by the Thomas Motor Company of Buffalo, but is minus the tonneau portion and is equipped with a handsome top.

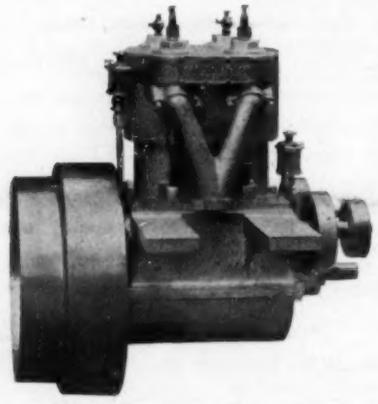
FACTORY CRANES.—The Cleveland Crane & Car Co., Wickliffe, O., manufactures a large line of traveling cranes for all purposes, and is making a strong bid for trade in cranes for use in automobile factories. The latest catalogues describing in detail all the various hand and electric jib, post and traveling cranes may be had on application.

TIRE REPAIRS.—The Continental Caoutchouc and Gutta Percha Co., 64-65 Holburn Viaduct, London, E. C., with American office at 298 Broadway, New York, and factory in Hanover, Germany, has published a complete little book on pneumatic tire defects and how to treat them. The proper care of automobile tires is extensively dealt with, and illustrations showing the manner of removing tires, etc., are numerous.

BUILDERS' MATERIALS.—The Standard Welding Company of Cleveland has recently issued a new catalogue and price list of its seamless steel tubing, automobile rims and special welded auto parts. The trade is already familiar with the tubing and the rims, but the samples of some of the new work, such as butt welding steel tubing to special forgings, stampings and pieces of tool steel, will perhaps open the eyes of some to the many possibilities of

this welding process. A valuable feature of the catalogue is the tables of dimensions, sizes, weights and prices of tubing, decimal equivalents of an inch, diameters and weights of rim, thickness, and weight of rims and number of spokes and lugs, and dimensions of tires and flat base rims for wood wheels.

TREBERT ENGINE.—In the new Trebert gasoline motor for 1904, shown herewith, the yokes across the top as employed in 1903 engine, have been discarded, the valve chamber caps being screwed into place, making a tight fit and improving the appearance of the motor. The intake and exhaust pipes are so constructed that there is no obstruction to the free passage



THE 1904 TREBERT ENGINE.

of the gases, there being no right-angle turns; thus the exhaust passes out quickly and the pipes are saved from overheating. The valve lifts have also been changed, being so constructed that when the cam raises the lift it revolves, thereby preventing pounding, saving wear and resulting in noiseless running. The valve gears are housed in an aluminum case, while the combined engine base and crankcase are of the same metal. The 1904 Trebert engine will be sold equipped with carbureter, spark coil, plugs, commutators and lubricator, all tested out together with the motor and properly adjusted. The engine is made and marketed by the Trebert Gas Engine Company, 163 Main Street, Rochester, N. Y.

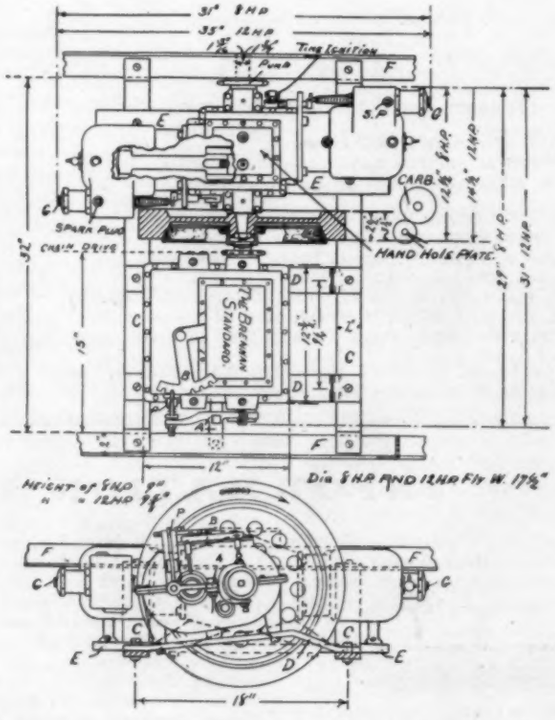
AUTOMOBILE MASK.—Odette Tyler's transparent face and hair protector, for automobilists is made in two different styles, one for fair weather and for racing, and the other for stormy weather. Both styles afford complete protection to the face and at the same time the danger of injury to the eyes in the event of an accident is greatly reduced. The mask is made of a transparent non-brittle material that is flexible and durable. It is very light, and fastens securely to the head of the wearer. Manufactured by the W. Keene Wilkins Co., 237 West 38th Street, New York.

THE 1904 ELDREDGE RUNABOUT.—The National Sewing Machine Company, Belvidere, Ill., has published an advance catalogue describing the 1904 Eldredge gasoline runabout, and desires correspondence with dealers relative to the placing of agencies. The engine of this new model is two-cylinder, horizontal, balanced, with mechanical inlet and exhaust valves, and is said to develop eight horsepower on the brake at 1,000 revolutions. The cylinders and cylinder heads are cast in one piece. Other special features are the multiple disc friction clutch, slide gear transmission with direct connection on the high speed, mechanical oiler, full platform spring running gear and artillery wheels.

BRENNAN 1904 MOTOR.—The 1904 model Brennan gasoline engine, made by the Brennan Manufacturing Company, Syracuse, N. Y., is of the company's standard horizontal type, having opposed cylinders with double throw cranks 180 degrees apart. Cylinders are of semi-steel, and the valve chamber and cylinder head are cast integral with the cylinders and are full water jacketed. Connecting rods are of the eye and beam pattern, of forged steel and with bronze bearings scraped to fit on the wrist pins and pitman.

The crank shaft is hand forged of open hearth, 30 carbon steel, the cranks being cut from a solid block of steel. The gears for the secondary shaft are of forged steel, and the shaft has a double bearing. The foot piece of the push rod can be swung to one side for taking off the exhaust spring, and the bronze bearing runs the full length of the push rod. The balance wheel for the 8-hp. motor weighs 75 pounds; that for the 12-hp. weighs 90 pounds, and the 14-hp. engine has a 100-pound wheel.

The crankcase of the new model has a large hand-hole plate for quick inspection and adjustment, and the top half can be



DIMENSIONS OF BRENNAN ENGINE AND TRANSMISSION.

easily removed, giving full access, so that the crank and shaft may be removed without disturbing the cylinders. The base is especially designed for convenience in mounting the motor.

Speed can be varied from 130 to 1,300 revolutions per minute, giving from 4 to 30 miles on the road. The supply of gasoline and air is automatically controlled in the carbureter. Ignition is by the jump spark system; water circulation is by a geared pump, and lubrication is forced, with grease cups on the crank shaft bearing. The 8-hp. motor weighs 200 pounds; the 12-hp. weighs 235 pounds and the 14-hp. weighs 250 pounds.

The transmission gear has three speeds forward and reverse, as follows: Direct drive three to one, intermediate six to one and slow speed and reverse twelve to one. The clutch is 12 1-2 inches in diameter with 2-inch face, and an angle of 10 degrees. A special bearing between the balance wheel hub and the crankcase hub relieves end thrust. The clutch is released by a bell crank which in turn automatically releases a pawl from a quadrant on another bell crank, thereby allowing the operator to make the changes of speed while the clutch is in. Provisions are made for hanging or mounting the transmission by brackets, if desired.

DIAMOND TIRES.—In the 1904 Diamond detachable automobile tire every point of possible weakness has been reinforced. Tests of actual service have given the Diamond Rubber Company, Akron, O., every confidence in the improved construction. An improved lug, covered with rubber instead of leather, makes the tire waterproof and prevents the chafing common to the leather covered lug. The new lug can be used on all sizes of tires, eliminating the former necessity of sixteen different sizes. The brand, "Diamond Detachable Tire," has been made very conspicuous in the company's 1904 lines, an indication of the pride of the manufacturer in a well-tried product.

GAS ENGINE INSTRUCTION.—The International Correspondence Schools, Scranton, Pa., have added a course in gas engine instruction by mail. The course, it is claimed, will provide machinists, draftsmen, inventors, and engine builders with the detailed descriptions and illustrations of the leading types, principles of their operation, and formulas for designing, necessary for the successful invention or design of gas, gasoline, and oil engines.